

JUNE 1961



INDUSTRIAL

# DEVELOPMENT

AND MANUFACTURERS RECORD

THE INTERNATIONAL GUIDE TO INDUSTRIAL PLANNING AND EXPANSION



#### SPECIAL REPORTS

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American Machine and Foundry Board Chairman Morehead Patterson has guided the growth of one of the outstanding makers of specialized machinery, now heavily involved in research for new products. The story begins on page 11.

9

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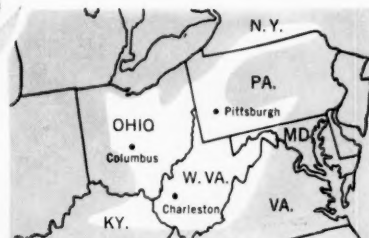
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# INDUSTRIAL DEVELOPMENT AND MANUFACTURERS RECORD

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## CHECK POINTS

**T**he Area Redevelopment Act is now the law of the land. We are embarked upon a far-reaching program of Federal participation in industrial development activities in the depressed areas of the nation.

As we have pointed out on numerous occasions, many experienced area development specialists are not enthusiastic about the new Federal program. Most of the developers we have queried have said they would not vote for it. We have seen practically no support of the idea from executives of expanding industrial firms who are the ultimate targets of the community promotion efforts.

Hazards in the program are numerous and obvious. To us, the biggest risk is that the U.S. government, once involved in industrial development at the local level, will not know where to stop. This has been the result of Federal entry into other fields hitherto reserved for local initiative and enterprise.

**We believe the decision as to where a firm will locate a new facility is the right of the management of that firm. We believe the location decision should be made objectively with the view toward putting the facility where it can operate most efficiently. We believe such decisions, which involve competition between areas and communities, are in the public interest. We think it is healthy for community leaders to present their "product" to site-seeking industries for comparison with other "products."**

If we are not cautious with government subsidy programs, we can take the edge off the competitive spirit of our communities and lose a vital quality in our local improvement activities. We can lose the right for industry to select the most efficient location, thus giving the Communist bloc another assist in the international contest for industrial leadership.

This is not idle talk. In Great Britain, for example, the national government is already deeply involved in the plant location decision. It is no longer possible for a British manufacturer to decide, on the basis of the usual economic and engineering factors, where he thinks his new facility will be most profitable and to select that location. Instead, he must apply to the Board of Trade in London for an "Industrial Development Certificate" which grants approval of the plant in an area where the Board says there is a need for it.

**Of course, the new Area Redevelopment Act spearheaded by Senator Douglas proposes no such ideas, even though the ultimate danger may exist. Here are the basic provisions of the new Act:**

Secs. 1, 2, 3, 4 — Purpose. Appointment of Administrator, an interagency policy board, and a public advisory committee.

Sec. 5(a) Provides for designation of "redevelopment areas" based on amount and persistence of unemployment. Secretary of Labor provides basic data.

(b) Provides for designating areas not meeting 5(a) standards, taking into account number of low-income families and amount of unemployment and underemployment.



## CHECK POINTS

- Sec. 6 — Provides for industrial and commercial loans. Such loans shall not exceed \$100 million for 5(a) areas and \$100 million for 5(b) areas. Loans shall not exceed 65% of the cost of the project. The interest rate is based on a formula that amounts to about 4%. Maturities up to 25 years permitted. An area must have an approved economic development program to receive financial assistance under the Act.
- Sec. 7 — Provides for public facility loans. Total of such loans not to exceed \$100 million. Interest at about 3½%, maturities up to 40 years.
- Sec. 8 — Provides grants for public facilities. Total not to exceed \$75 million.
- Sec. 9 — Establishes a revolving fund of \$300 million for loans to be obtained by borrowing from Treasury.
- Sec. 10 — Provides for assistance to redevelopment areas and other areas in the form of information, advice, and research.
- Sec. 11 — Provides \$4.5 million for technical assistance. May be provided by contract or directly.
- Sec. 12 — Administrative provisions.
- Sec. 13 — Provides authority to terminate designation as a "redevelopment area."
- Sec. 14 — Amends Housing Act to increase flexibility in providing urban renewal assistance for nonresidential purposes.
- Sec. 15 — Amends Housing Act to authorize urban renewal planning grants in redevelopment areas for not more than 75% of the cost of the project.
- Sec. 16 — Provides for occupational training based on needs determined by Department of Labor. HEW will arrange for training.
- Sec. 17 — Authorizes subsistence payments to trainees.
- Sec. 18-23 — Administrative provisions.
- Sec. 24 — Authorizes Secretary of Commerce to delegate functions to other agencies in order to avoid duplication of existing facilities. Provides five supergrades for carrying out the Act.
- Sec. 25 — Administrative.
- Sec. 26 — Eliminates the termination date of SBA's program for loans to State and local development authorities.
- Sec. 27 — Provides authority to conduct research on causes and solutions to chronic unemployment.
- Secs. 28, 29 — Administrative.

As we noted earlier, the Act is now the law of the land and we will do whatever we can to make it work effectively. We call upon all our readers, including many who bitterly opposed the plan, to contribute whatever they can to its wise and constructive application.

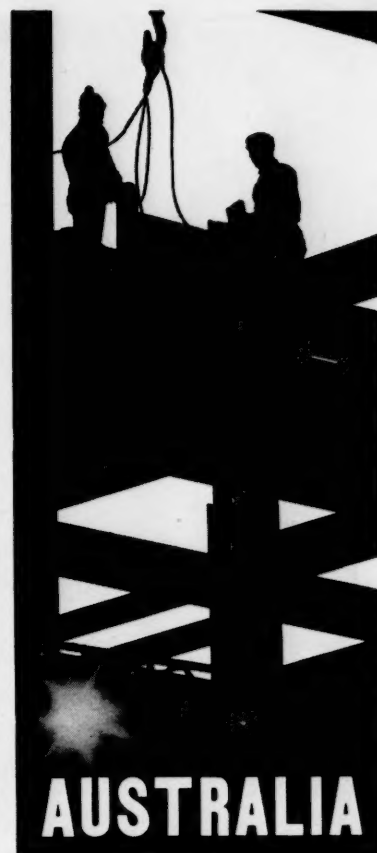
**But let no one think that this Act or any other piece of legislation will take the place of local initiative and enterprise! These factors will always be the basic ingredients of successful local improvement efforts.**

We have visited most of the so-called depressed areas and we have seen few situations which could not be improved drastically by properly organized efforts at the local level. And we have seen many examples of outstanding progress resulting from inspired leadership and determination.

Such a case is Livonia, Michigan, covered in our editorial survey in this issue. The whole state of Michigan has received reams of adverse publicity about various problems of high-level industrial employment, and the recent recession left a high percentage of workers out of work. To listen to the pessimism-promoters, you'd expect to find this Detroit suburb a desolate community of beaten men standing in bread-lines.

What are the real facts? Our staff found Livonia to be a true "bright spot" with every reason to be confident of the future. The city boasts fine institutions, intelligent leadership, and high morale. We have no doubt that the greatest development of this area is yet to come. And Livonia's success will be guaranteed not by a Federal program but by the imagination and initiative of her citizens.

— H.M.C.



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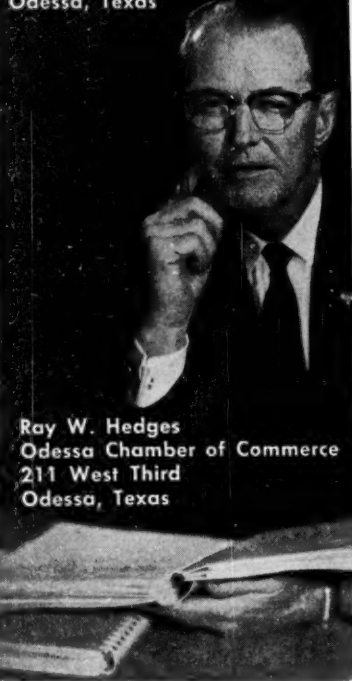
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## INDUSTRIAL DEVELOPMENT LETTERS MANUFACTURERS RECORD

SIRS: INDUSTRIAL DEVELOPMENT magazine deserves congratulations in encouraging the new Industrial Development Research Council, as detailed in your March issue.

This organization of executives planning future growth and expansion will not only serve to develop methods and techniques for industry itself, but will provide industrial development organizations with means of measuring the practicality of their own programs.

The more we know about what buyers in this field want, the better able we will be to merchandise our product.

PHILIP C. AHERN

Executive Director

Berkshire County I.D. Commission  
Pittsfield, Massachusetts

► ID's support of IDRC is another step in our efforts to further professional concepts in all development work. We are encouraged that many area development specialists are in agreement with this new Council for industry.

SIRS: . . . I would like to have 10 additional copies of the February issue of INDUSTRIAL DEVELOPMENT to give to other businessmen who are both interested in your magazine and in Latin America. I appreciate your assistance.

DAVID C. KEENAN

Regional Manager

Kaiser Aluminum & Chemical Sales  
Dallas, Texas

SIRS: . . . This publication (ID) is proving very helpful to several of us who are concerned with the subject of plant location.

If available please send to my attention another copy of the October, 1960 "Annual Site Selection Handbook Edition." . . .

GEORGE D. RUBY

Sec. and General Counsel  
Jantzen, Inc.  
Portland, Oregon

SIRS: Your magazine INDUSTRIAL DEVELOPMENT and MANUFACTURERS RECORD is very informative. I would like to know your subscription rates and I would be very grateful if you could send me a random copy for further scrutiny.

ROBERT E. CHAMBERS, JR.

Bernal Foam Products Co., Inc.  
Buffalo, New York

SIRS: In research we are presently initiating regarding production, reserves, markets and prices of industrial minerals in states bordering the Great Lakes, a directory of personnel and government departments to which inquiries may be directed would be very helpful. Mr. E. W. Finlay, your Toronto representative, suggested you may be able to supply such a directory.

The states we are presently interested in are: Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania and New York.

The industrial minerals of interest may be at one time or another any of those

## INDUSTRIAL DEVELOPMENT LETTERS MANUFACTURERS RECORD

## REFERENCE STUDIES

Since before the turn of the century MANUFACTURERS RECORD has issued special studies of specific cities and areas to assist the site-seeking industrial firm. Today, through the combined coverage of INDUSTRIAL DEVELOPMENT and MANUFACTURERS RECORD this tradition of leadership in this field is being extended and carried forward. Before you go site-seeking, take advantage of background studies which have already been prepared for the areas listed below. Generally, reprints are available gratis.

Empire Central	May, 1961
Edmonton, Canada	May, 1961
New Mexico	Apr., 1961
Keokuk-Ft. Madison, Iowa	Apr., 1961
Northern Natural Gas	Mar., 1961
Odessa, Texas	Mar., 1961
The Gulf-Caribbean Area	Feb., 1961
Area of the Palm Beaches	Feb., 1961
Greater Burlington, Vt.	Feb., 1961
Central New York	Jan., 1961
Missouri	Jan., 1961
Pennsylvania	Dec., 1960
Oak Ridge, Tenn.	Dec., 1960
Berkshire County, Mass.	Nov., 1960
North Bay Area of Calif.	Nov., 1960
The British Isles	Nov., 1960
Indiana	Oct., 1960
Georgia	Sept., 1960
Seattle, Wash.	Sept., 1960
Elliott Lake, Ontario	Sept., 1960
Canada, 1960	Aug., 1960
Rock Island Lines	Aug., 1960
New York's Capital District	Aug., 1960
New England	July, 1960
Washington State	July, 1960
North Carolina	June, 1960
California, South Bay Area	June, 1960
Blue Book of South	May, 1960
The Mohawk Valley	May, 1960
No. and Cen. California	May, 1960
Alma, Michigan	Apr., 1960
Thomasville, Ga.	Apr., 1960
St. Augustine, Fla.	Mar., 1960
Colorado	Mar., 1960
Gainesville, Fla.	Feb., 1960
Western Pacific Railroad	Feb., 1960
West Virginia	Jan., 1960
Calgary	Jan., 1960
Hawaii	Dec., 1959
Kansas	Dec., 1959
St. Lawrence Valley	Nov., 1959
Oregon	Nov., 1959
Virginia	Oct., 1959
Staten Island, New York City	Oct., 1959
Oklahoma	Sept., 1959
Fresno County, Calif.	Sept., 1959
Niagara Frontier	Aug., 1959
Canada	Aug., 1959
Ohio River Valley	July, 1959
Columbus, Ohio	June, 1959
St. Louis Area	May, 1959
Iowa	Apr., 1959
Puerto Rico	Mar., 1959
Washington, D. C. Area	Feb., 1959

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## LETTERS

listed in the Seeley W. Mudd Series, Industrial Minerals and Rocks...

**NORMAN H. URSEL, P. Eng.**  
Franc. R. Joubin & Associates  
Toronto 1, Ontario, Canada

► We have referred Mr. Ursel to our annual Site Selection Handbook.

**SIRS:** ... I may be able to do you and many communities a service by having some more information on this [community audit] program of yours. ... As I work with sixty-one towns in Mississippi, Alabama, Florida, and Louisiana, I would like to tell them more of your services; because I think [you] are doing the greatest job in industrial development education in the nation today. I would appreciate your briefing me on the cost and other details, as well as sending a sample audit form; and I will do my best to get the results for you...

**WILLIAM D. SIMS**  
Assistant Vice President  
American National Bank  
Mobile, Alabama

► We certainly appreciate Mr. Sims' offer of assistance and have forwarded him the necessary information.

**SIRS:** Recently we wrote to you regarding a search for an available electronics company. We are again in need of your assistance. We have a client who manufactures and sells a wide range of precision electronics products. They have asked our help in uncovering business opportunities suitable to their management abilities and production facilities...

**NAME WITHHELD**

► If any reader is interested in this proposal we will be glad to relay correspondence to the interested party.

**SIRS:** I am now putting into final form the manuscript of a study entitled, "Methods of Plant Site Selection Available to Small Manufacturing Firms." This study is being conducted under a grant from the Small Business Administration and will be published within the next few months as one of the current series of Small Business Management Research Reports.

In the course of the study, a number of references are made to **INDUSTRIAL DEVELOPMENT** magazine and to the contents of articles which have appeared in the magazine...

I wish to request permission to use this material from **INDUSTRIAL DEVELOPMENT** in the published study. Incidentally, I found your magazine extremely useful in this research and have cited it in the text as one of the best sources of plant location information.

**JAMES H. THOMPSON, Director**  
Bureau of Business Research  
West Virginia University  
Morgantown, West Virginia

► We're happy to OK such use of ID material.

**SIRS:** We have enjoyed very much John Riley's article, "The Problems of a Brand New Company," which appeared in the January issue of your magazine. It is well written and most aptly describes the problems that face all beginning enterprises in one way or another.

It is our desire to run the article in the next issue of our publication, *The Economic Development Digest*. May we have your permission to reprint it?

**PAUL O. HAUFFE**  
Publications Director  
Ind. Dev. Expansion Agency  
Pierre, South Dakota

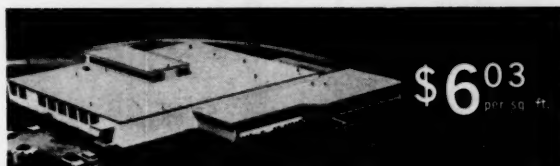
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**E. A. YATES, Jr., Vice President**

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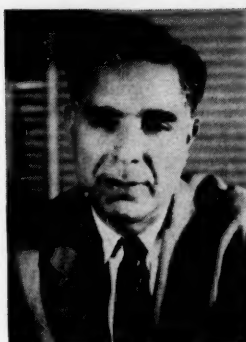
## *U.N. Launches Global*

**Official worldwide recognition of the importance of industrial development is now a reality, with the activation of the U. N. Committee on Industrial Development. Some of the primary objectives of this new unit are given in the accompanying policy statement which was presented to the first session on March 27th.**





Mr. de Seynes emerged from a German prison camp in 1945 to hold responsible French Governmental and inter-allied posts before coming to the UN as a delegate in 1949. His present post, which he has held since 1955, corresponds to a cabinet post in our government.



Mr. Said Hasan is Pakistan's Permanent Representative with the UN and is Chairman of the new Committee on Industrial Development of the Economic and Social Council. In the course of his distinguished career in governmental and international affairs, he had a hand in formulating the Colombo Plan.



Dr. Samuel Lurie, a member of the UN Secretariat since 1948, is a Belgian. He has been designated as Director of the Industrial Development Division of the UN's Department of Economic and Social Affairs.

# Industrial Development Program

*By Philippe de Seynes  
Under-Secretary for  
Economic and Social Affairs  
The United Nations*

**T**he phenomenon of industrialization which originated at the beginning of the nineteenth century, is probably the most significant event that has so far moulded man's destiny. The industrial revolution has not only transformed the world in which we live, through its material achievements; by increasing life expectancy it has also profoundly modified the demographic and biological structure of the human race. It has moreover changed our historical outlook, bringing us to abandon the long-accepted belief in the advent of a stationary state. Although by means of different reasoning, the great masters of economic thought had almost unanimously predicted the slowing down and final cessation of economic growth.

Even John Maynard Keynes, despite his ability to discern the possibilities of an enlightened policy for full employment, foresaw the exhaustion of investment opportunities as a result of a continuing decline in the marginal productivity of capital. It needed the extraordinary achievements of the post-war years, which enabled European countries not only to repair enormous damage, but also to fill serious gaps in their infra-structure, to make us fully realize the possibilities of technical progress and industrial development. We have now substituted for the image of a stationary state the prospect of continuous growth, once the take-off stage has been passed.

It is therefore not surprising that

the aspirations of the under-developed countries are so often centered on industrialization. That, it seems to me, is the *raison d'être* of this Committee, whose establishment eloquently demonstrates that the industrial phenomenon is extending throughout the world, that it has become a permanent factor in our destiny and that we must attempt to assess its conditions and effects and evaluate some of its consequences for the future of the international community.

The development of statistics, which followed closely on industrialization, provides us with a means of analysing, if only approximately, some essential elements of the problem and of its evolution. Our statistical and analytic apparatus, despite the many imperfections of the available data, today enables international bodies to discern major trends and thus to discharge the consultative and political functions entrusted to them. Among the many recent studies, I should like to refer to the United Nations Statistical Office's important report "Patterns of Industrial Growth 1938-1958."

I shall cite from this document a few figures which place the problem in proper perspective. Production of manufactured goods calculated at 1948 prices amounts to about \$280,000 million, eight times the level at the beginning of the century. This figure does not include the manufacturing production of the USSR, of Eastern Europe, and of mainland China, for which countries it is difficult to have strictly comparable data. It is probable that if these countries had been included, the rate of growth would appear to be even higher. If we subdivide that period, the process of growth emerges more clearly: between 1900 and 1938, in real terms, it trebled; during the next ten years, despite the world war, it increased by a further 50 per cent; between 1948 and 1958, another ten years, it practically doubled. No less significant are the changes which occurred in the component elements of these aggregates.

Three facts stand out in the past twenty years: first, productivity per person employed in manufacturing has increased very substantially; the world average rose from \$1,800

in 1938 to \$3,200 in 1958, reflecting a remarkable improvement in productive capacity as well as a better combination and utilization of resources. Secondly, during the same period, the increase in production and productivity was more pronounced in heavy industry (metals, chemicals, paper) than in the light industries (food, textiles, leather); the rate of growth in the heavy industries was double that of the light industries, with the result that in 1958 the heavy industries accounted for nearly 60 per cent of the entire manufacturing production. Finally, the rate of industrial growth in the under-developed countries, in recent years, exceeded for the first time those recorded in the highly-industrialized countries. These data must of course be interpreted in the light of the differences in the levels of production to which the percentages relate and also of the demographic factors. Seventy per cent of the world's population live in the under-developed countries and their per capita output of manufactured goods is on the average only about \$25 a year, as against \$420 in the industrialized countries. But this very difference gives an indication of existing potentialities. The progress which is likely to result from improved productivity is indicated by the present disparity between the levels of productivity per person employed in the manufacturing industries of the two groups of countries: \$900 in the under-developed countries and \$3,600 in the industrialized countries.

The under-developed countries' progress towards industrialization is also reflected in changes in the structure of their foreign trade, in particular the significant increase in the share of imports of capital goods. During the past five years, for example, imports of capital goods have increased by nearly \$2,000 million and now represent some 25 per cent of the total imports of the under-developed countries. At the same time, there has been a corresponding decline in imports of consumer goods.

These few figures which are cited with some reservations in view of the still imperfect state of our statistical knowledge, nevertheless afford some idea of the general trends

which will provide a framework for the work of this Committee. It is in order to assist Governments and the international community in dealing, by means of discussion and collective action, with these structural changes that you are meeting here.

### Technical Assistance

A first group of problems is connected with the transfer of technology and its adaptation to conditions in the under-developed countries.

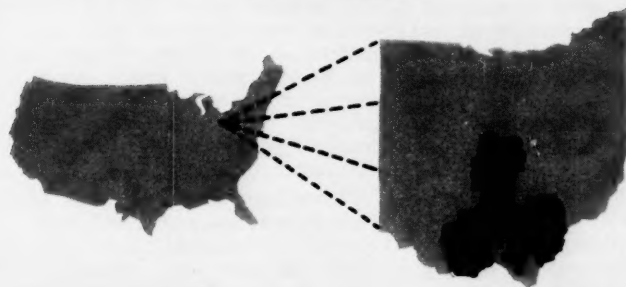
The transfer of technological knowledge, which was formerly almost exclusively associated with the flow of private capital, is today a largely autonomous process, as a result of the technical assistance programmes. These programmes have developed in several instances, in particular within the United Nations family where they enjoy a definite advantage in that they can draw upon the stock of knowledge and experience acquired in various types of countries, including the under-developed countries themselves.

Technical assistance is a particularly flexible instrument, highly adaptable to the specific situations arising in any given industrial development programme. During the discussions which led to the creation of this Committee, however, it became apparent that existing programmes could be usefully supplemented by more systematic action; international gatherings, meetings of experts and an intensified exchange of information could widen the range of knowledge available to experts and enable them to keep in touch at all times with latest advances in technology.

### According to Plan

A second group of problems is connected with the choice of industrialization policies. In the past, the process of industrialization has been essentially an empirical one, based on private initiative, competition, and the lessons, happy or otherwise, of experience. Today, regardless of their economic and political systems, and even where they are particularly eager to put to use all the creative possibilities offered by private initiative, the under-developed countries feel a pressing need to replace empiricism by a conscious

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and organized approach. The resources they can use for the development of their industries are so limited that they must of necessity try to weigh each undertaking's chances of success as accurately as possible.

The study of investment criteria, of methods to determine the most favourable combination of factors of production, the size of undertakings and their location is not limited to planned economies. In the course of the survey which we made last year of private capital investment in under-developed countries we noted the interest shown in these problems and in the steps that would permit more rational decisions based on scientific analyses. Our experience of more than ten years in the field of technical assistance, drawn from a great number of reports by experts with different backgrounds and different kinds of training, shows to what extent decisions concerning the establishment of industries, are still based on instinct, flair and experience acquired sometimes under entirely different conditions.

An industrialization programme calls for different types of specialists who work according to their own methods: it calls for the services of a general economist to study the criteria applicable to industrial policy in terms of rates of growth, national income and capital-output and capital-labour ratios. Next, for the industrial economist who studies the problems of the individual enterprise, the scale of operations, costs and prices and location. Finally, the engineer who is to carry out the project, has to consider the same problems in the light of purely technical criteria relating to the choice of techniques of production, equipment and organization of work.

These problems are still for the most part considered in separate departments and there is a need, both in planning and at the implementation stage, for an over-all approach bringing together the various disciplines concerned. Such an approach, of course, demands considerable effort in the way of studies in depth and the compilation of extensive data. It would, however, provide a basis for more accurate evaluation of the factors of production re-

quired to achieve particular targets in industrial operations and would help to fill some of the most obvious gaps still found in even the most advanced planning systems.

### Impact of Growth

Finally, there is a third group of problems associated with the consequences which industrialization of the currently under-developed countries cannot fail to have for the organization of the world economy. Here, a long-term outlook is imperative. In this connexion, I shall take the liberty of quoting what I said when addressing the seventeenth session of the Economic Commission for Asia and the Far East at New Delhi:

"Economic projections have become a requirement of modern international life, which have been recognized and endorsed, although with some hesitation by the organs of the United Nations. A programme of global and sectoral projections is now under way and I should like to mention the decisive impetus which was given to it by Mr. Krishna Menon in an address to the General Assembly in 1959. A year later, Mr. Macmillan, with a similar perspective in mind, called for the formulation of a 'plan for the development of world resources.' The idea is no longer the mere brainchild of economists, but is rapidly gaining ground in the main decision-making centres and it is, I believe, of particular relevance in the ECAFE region where population pressures and the scale of the problems to be contended with leave so little room for errors of calculation.

"Some industries in the most advanced countries will have to prepare themselves for reconversion, either on their own initiative or with governmental assistance. The international community will have to consider the adjustment of certain institutional rules which have in the past furnished the basis of a liberal policy, but which were conceived and developed before this problem began to emerge. The removal, even if a gradual way, of customs and tariff barriers is bound to arouse the traditional objections — outdated though they may seem — to competition from cheap labour. Moreover, let us not forget —

and we already have some examples of this — that low wages can, for a time at any rate, perfectly well be combined with the advantages of high productivity. It is not too early, then, to begin to search for possible solutions and to promote changes in attitudes."

This aspect of industrialization which is the most significant in the international sphere has been dealt with so far only timidly. It is currently under study pursuant to resolutions adopted by the General Assembly and the Economic and Social Council. For that reason, it does not appear in the work programme submitted to you. Nevertheless, I feel that your Committee must take cognizance of it, at some time or another, for if a course of action designed to bring about a minimum of harmonization is to be followed, it must be based on studies clearly within the terms of reference of this Committee, namely studies relating to the comparison of costs of production prevailing under different conditions and in different countries.

The authors of the Charter who met at San Francisco to draw up plans for this Organization, which they envisaged fundamentally as an instrument of multilateral diplomacy, would doubtless have been greatly surprised had they known that in the not too distant future a committee dedicated to the industrialization of the under-developed countries would meet under the auspices of the Organization. That this meeting is taking place is an indication of the changes that have occurred in ideas and attitudes during the past fifteen years.

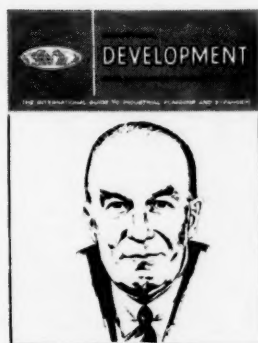
Let us not delude ourselves that the task of this new body will be an easy one. One of its difficulties will be to recognize the limitations of the possible action and define precisely the objectives which can be most effectively served by the various means of action currently open to the Organization, particularly by public discussion and exchange of experience and views, for which this Committee provides a forum. In any case, I can assure you that the Secretariat will spare no effort to help this Committee accomplish a mission in which Governments have placed some of their hopes.



"A famous English Church leader once said, 'Growth is the only evidence of life.' At American Machine & Foundry Company we take these words quite seriously and try to leave no doubt of our vitality."

# Multi-Faceted AMF: WARS ON COMPLACENCY

By Morehead Patterson, Chairman of the Board  
American Machine & Foundry Company



AMF is perpetually at war against the rust of complacency. Continuous internal surveys and control mechanisms are designed to expose existing or future weaknesses in our manufacturing facilities. Our prime manufacturing policy is: To Maintain or Improve Quality and Service but Reduce Costs and Improve Investment Return.

To understand how the company implements this policy we shall have to examine some of the reasons

Then we shall have to describe how AMF analyzes and comes to a decision on a new location for a new facility.

There are three main reasons inherent in our policy, which explain why AMF expands or remodels its existing facilities or seeks new facilities: the first, is to reduce our material handling costs; the second, is the need for additional manufacturing space; and the third, is our constant striving to automate and mechanize our processes.

Back of all these reasons is the pressure generated by our research and development effort which is organized as a broad and consolidated team to integrate long-range research and the discovery, development and commercialization of new products and processes.

## Reducing Handling Costs

We pay considerable attention to the handling of materials and products. Wherever possible, we reduce handling costs of raw materials and carefully protect material and components while on the move inside and outside our plants, including their packing, storing and shipping. Sometimes we find that an old building is restricting us severely in this function and we begin to think in terms of a new and modern structure.

Our first step is an economic justification study to provide us with answers to such questions as:



This map shows the location of major plants and research and development laboratories of the American Machine & Foundry Company in the United States and Canada.

why AMF expands or abandons or consolidates existing facilities, or sites and constructs new facilities.

## MULTI-FACETED AMF

Are we properly and economically serving our customers from this location? Will a move or modernization improve inventory control and reduce inventories? Would branch warehouses help inventory control? Where are our markets growing and ought we to locate nearer to them? Can we lower our materials costs by moving closer to our sources? What calculable effect would moving closer to rail, truck and air terminal centers have on our costs and service?

An example of a move to solve a material handling problem is our new 212,000 sq. ft. Bowling Products warehouse at Elk Grove, Illinois.

the best we can in our existing facility.

But if the market outlook warrants it, we don't hesitate to think in terms of a bigger plant. Once again we subject ourselves to some searching questions: Is it economically feasible to expand the present plant? Can we help solve the problem by moving part of the production line to another location? Has advancing technology made or will it soon make the present plant obsolete? Will improved machinery and more mechanization help hold our share of the market? Is the present plant properly located with relation to changes in national economy, popu-

electrical relays. Essentially the same line is produced at Marion and Franklin, Kentucky as at the home plant in Princeton, Indiana.

### Automation and Mechanization

In some of our businesses, survival depends upon keeping abreast of (or better still, ahead of) advancing technology. Automation and mechanization comes naturally to AMF. We got started 61 years ago in the automatic precision machine business — tobacco processing. This work evolved into cigarette and cigar making; bread making, slicing and wrapping; and pretzel-tying, among others.

After years of accumulating "know-how" we became specialists in the design and manufacture of automatic machinery. Whenever we build a new plant or modernize an older one, we try to include the latest developments in automation and mechanization.

### How We Decide Where to Locate

Having decided — based on the reasons described above — that a move is necessary, we set about deciding where to move. AMF doesn't have a rigid rule book for making such decisions. Our broadly diversified lines of business cannot be set down to any mathematical formula. We study every case on its merits, not forgetting our own experiences in making past moves.

In planning for expansion — and we do plan very carefully — we have not found it necessary to set up a special expansion-planning division for two important reasons: the first, is the availability in our headquarters of specialists who keep abreast of industry trends in machinery, building construction, processes and technology; the second, is our reliance upon our subsidiary and division managements to give the proposed move the most careful check and scrutiny. Each AMF business unit is responsible for P&L statements, which gives them a keen interest in anything which may affect their future profitability.

The first thing we do is to assemble a file of facts we can trust before we crystallize our thinking. This isn't as easy as it sounds. Horseback opinions advise against the north, the south, the east and the west. Confusing tales concerning



### AMF Planning Executive is on Board of IDRC

AMF's director of production, Robert W. Pearson, is a key member of the corporate staff which coordinates facilities planning. Mr. Pearson is also a member of the provisional board of directors of the Industrial Development Research Council, a new professional organization devoted to the advancement of scientific methods, techniques and procedures in the field of industrial expansion planning. (See page 16 of this issue.) A graduate of Drexel Institute and the University of Pittsburgh, Mr. Pearson has had wide experience in manufacturing in several major companies. He joined AMF in 1956 and became director of manufacturing for the Government Products Group in 1958 and was appointed to his present position in 1960.

This warehouse is practically next door to Chicago's O'Hare airfield, a few miles from numerous truck terminals and within minutes of the world's greatest network of rail freight facilities. AMF Bowling Products' customers get service in a hurry from this new facility.

### Additional Space for Manufacturing

As the markets for AMF's products grow and as we add new products to our lines, we often find ourselves "housebound" — cramped for space. However, if our market surveys indicate a saturation of that particular market, or if we are advised of an impending change in technology which makes expansion risky, we tighten our belts and do

lation and transportation? If we were starting from scratch, where is the ideal place to locate the plant? What is our existing labor situation and is it attractive enough to keep us where we are?

We do not take the answers to these questions lightly. After we obtained the answers, we built our modern one-story AMF Bowling Automatic Pinspotter plant at Shelby, Ohio, within a mile or two of our old multi-story plant.

The answers to these questions also caused us to move our children's wheel goods production plant from Hammond, Indiana to Mokena, Illinois.

Another set of answers caused us to open branches for our growing AMF-Potter & Brumfield line of

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To keep pace with Ohio's dynamic growth, the state's eight investor-owned electric power companies will spend three billion dollars in the coming decade to double capacity. As much new generating capacity will be provided in the next ten years as was built in the past seventy-five.

If you are seeking a plant site, these facts are important for two reasons. First, this is solid indication of the confidence electric utilities have in Ohio's future growth. Second,

you can be sure there will be plentiful, dependable electric power for your industry. Today, Ohio's generating capacity is 10.6 million kilowatts, and this state is the number one user of electric power in the nation.

Additional information detailing vital plant site factors is yours for the asking. Send the coupon below on your letterhead for two new booklets of solid facts: Statistical Abstract of Ohio: 1960 and Ohio, The Growth State.

---

Koder M. Collison, Director  
**State of Ohio, Department of  
Industrial and Economic Development**  
700 Bryden Road Columbus 15, Ohio

Please Send:

- ☐ Statistical Abstract of Ohio: 1960  
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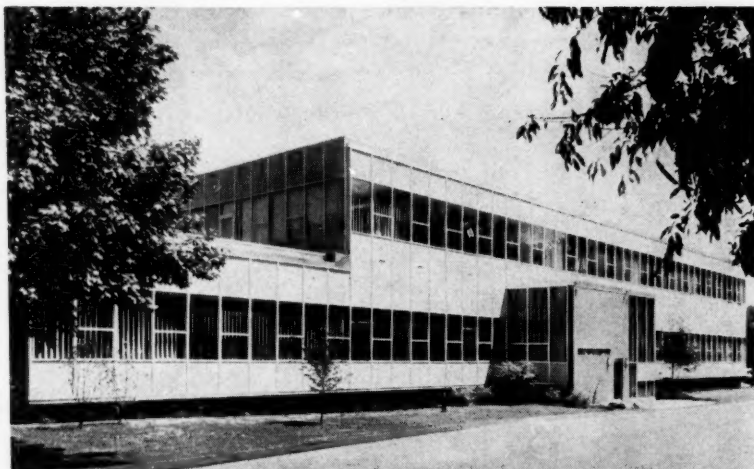
BUSINESS ADDRESS

CITY

ZONE

STATE

## MULTI-FACETED AMF



An exterior view of the Research and Development Laboratories of AMF at Springfield, Connecticut. The company conducts a broad line of research and development here in the fields of electronics, chemistry, physics and electro-mechanics.

### AMF CHAIRMAN

Morehead Patterson, a Southerner by birth, is a graduate of Yale and of Harvard Law School and has been with AMF since 1926; he was President from 1941 to 1958 and has been Chairman of the Board since 1943. He has a notable record of public service in science, education and government. He is currently Chairman of the Board of Trustees of the Brookings Institution and of the Nuclear Standards Board of the American Standards Association. He recently served as U. S. Representative for International Atomic Energy Agency Negotiations.

productivity, labor rates, labor relations, taxes, difficult communities and states and regions are yours for the asking.

We at AMF prefer four approaches: true experts; working managements who speak our language; voluminous case files of objective data; and the almost indefinable "feel" for a situation which comes with first hand experience.

It is hard to say which approach comes first. Usually, however, when expansion plans first get off the ground, the operating division contemplating the move gets objective data from the headquarters staff. The data include such useful information as local and state taxes, freight rates, labor supply by skills, labor rates by skills, construction

and operating costs, land availability and costs, and other "hard" data. Much of this information has been compiled from reports by city and state development agencies, chambers of commerce, banks, utilities, trucking firms, railroads, airlines, terminal operators and similar sources.

After the division management has gathered its preliminary data, we do not hesitate to call on outside experts to check our figures, to review our preliminary plans, to survey the general situation in its many ramifications. We put our questions to specialists in factory relocation, manufacturing techniques, market planning, and plant construction. We may call in these experts in any stage of the decision-making period.

Some possible sites are eliminated by simple examination of the data; others fall under the severe scrutiny of our experts and specialists. Most of those still left receive visits from us. We look at proposed sites and talk to managements of companies already there. We learn of their disappointments and troubles; and of course, we learn of their accomplishments and successes.

One of the most important things we look out for on these visits is that difficult-to-define but all important quality of "productivity." For a given set of conditions, mathematically accurate figures may be developed for air and rail distances;

reasonably accurate calculations may be made of direct and indirect labor costs; power and fuel costs; and many other account items for a given area or region. But to calculate productivity in advance is considerably more difficult and to determine the effectiveness of newly-hired supervisors is almost impossible.

Our people have learned through experience to make fairly accurate relative estimates of productivity. We've learned that it isn't always the employee, or the state, or the community that's at fault. We have frequently found that it is the local supervision or higher management which hasn't properly organized the job, set the pace, or simply has not demanded the best of its men.

At this point, armed with all the information we have gathered, the division's Expansion Evaluation Team can get down to business. The pros and cons of the many factors developed for the areas under consideration are tallied and scored. In due time, the list of potential new plant sites gets narrowed down to two or three. A second or third evaluation refines the information still further and usually ends in a recommendation to top AMF management to build our plant in Town X.

### Three Case Histories

Sometimes we can go through the period of analysis and decision-making in a couple of months. That is all the time it took to decide on the new Pinspotter assembly plant at Shelby, Ohio. While it was easy to arrive at economic justification for this new plant, precisely where to place it took a bit more than two months.

Since we already had a plant in Shelby, we had only to review our experiences. Labor relations at Shelby were good and the labor supply for our semi-skilled occupations was reasonably plentiful. Shelby had hundreds of small, well equipped shops within a few miles distance which could undertake our machining and subcontracting needs at reasonable costs, and geographically, Shelby is near the center of the automatic bowling machine market in the U.S. Thus, it didn't take long to decide that



## MULTI-FACETED AMF

AMF would stay in Shelby.

In contrast to this rapid decision, is the five years it took before we decided on our move to Olney, Illinois. During this period, we followed the market trends for juvenile wheeled vehicles, got a "feel" for foreign competition which is important in this field, and continually checked the costs of various items in our product line. We even experimented, making some products at other AMF plants for cost comparisons.

Our Wheel Goods Division worked with several different outside specialists over an extended period of time in studying all phases of the operation at our existing Hammond, Indiana plant. A final outside check in 1960 revealed that two new competitors were making inroads into our market.

That news clinched it for us; we now knew that we could not remain in the old plant much longer and continue to show a reasonable profit. We were housebound at Hammond, bursting the seams of a 60-year old structure with no room for expansion and little chance for modernization. The plant's productivity was quite high and we were sincerely interested in finding a site in the same area. We searched the area thoroughly, but we could not find the site we needed at a price we could afford in this extremely competitive product line. In spite of our reluctance to move, competition was forcing our hand. Our choice was simple: grow or die! We preferred to grow.

We undertook the study and analysis required to find a good city in which to grow and finally settled on Olney, where we are presently having built for lease a new 400,000 sq. ft. plant.

### No Formula

To those who are searching for a magic equation which will mathematically resolve the many unknowns into a single best site for a new plant, I can only say that AMF hasn't found one. I don't think we ever will.

However, for those who choose the path of growth, we say: expansion can make you grow, but it is fraught with pitfalls. Get all the help you can before you plunge. Make your decision from the facts, not from wishful thinking.

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# A PROGRESS REPORT



Early in 1961 plans were announced for the formation of a new non-profit international organization devoted to the advancement of science in the field of industrial expansion planning. The IDRC has now come into existence with legal adoption of its constitution and by-laws.

Under the guidance of a provisional board of directors made up of twenty-four outstanding executives representing major industrial firms, the program is now being prepared for the first annual conference. The session will be held in October in New York.

The program calls for heavy emphasis on the theoretical base of expansion planning, scientific approaches to project evaluation and site selection, feasibility studies, and techno-economic analyses. Discussions will probe the function and coordination of officials concerned with long-range planning, facilities planning, site surveys, and real estate management.

Executives of significant industrial firms whose duties are related to the interests of IDRC are invited to consider membership and active participation in this new professional endeavor. Inquiries will be treated in confidence.

## THE INDUSTRIAL DEVELOPMENT RESEARCH COUNCIL

H. McKinley Conway, Jr., Executive Vice President  
2592 Apple Valley Road · Atlanta 19, Georgia, U.S.A.

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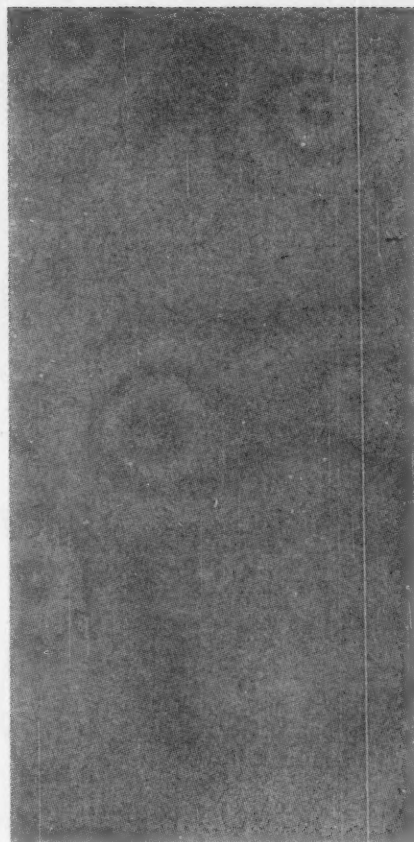
Philadelphia •

Livonia, Michigan stands out as an example of local initiative. Positive action by the City Government has resulted in a City with social and economic stability. Livonia's city officials are actively working to attract new industry to the City's Industrial Belt with a program of planned growth and realistic tax revision. ID's look at Livonia presents the facts on a community that invites investigation.



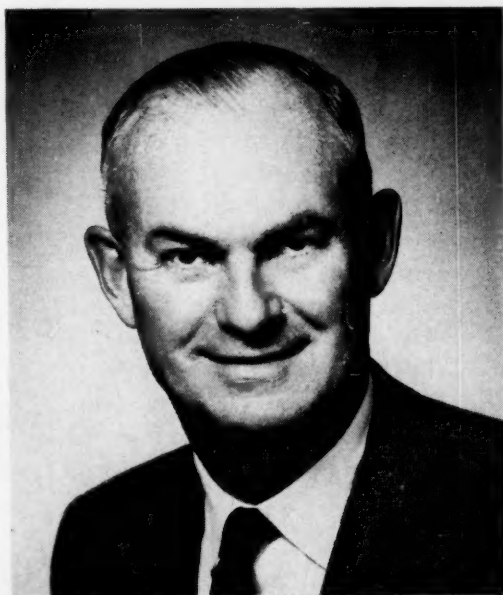
THE INTERNATIONAL GUIDE TO INDUSTRIAL PLANNING AND EXPANSION  
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Investigation of the Livonia area will reveal not only a tailor-made Industrial Belt for your plant site, but also a refreshing approach in local government to a city's future expansion and its growth amid nearby areas of depression. Livonia has turned the area labor surplus into an asset and is reaching out to attract diversified industry. Livonia's citizens, enthusiastic about the future of their city, refuse to wear the label "depressed", as they plan and build their community for the future.



*"I think that our secret is the friendly understanding, and cooperative attitude on the part of city government. This is most essential as it leads to the type of action and implementations which produces the conditions and services industry requires which are otherwise known as healthy industrial climate."*

Mayor William W. Brashear built a home in Livonia Township 13 years ago. Entering into community activities, he soon found himself appointed Township Attorney. Breathing in the air of enthusiasm surrounding this growing community, he threw every effort into helping the young city's growth. Now entering his third term in office as Mayor, this former F.B.I. Agent continues to push for progress that will make Livonia a truly great city.





# LIVONIA PROVES THAT LOCAL INITIATIVE WORKS!

**D**on't believe everything you hear about "depressed areas"!

If you have visions of an industrial ghost town, with crumbling buildings, outdated facilities and a residue of demoralized people, officially stamped "depressed" by governmental proclamation, you have only a part of the total picture.

Existing in many areas of high unemployment and classified as "depressed" are many communities with which many **non**-depressed communities would happily change places.

An excellent example is Livonia, Michigan. Incorporated just 11 years ago, this Detroit suburb has enjoyed a growth rate which would make most cities green with envy. Visit Livonia and you will see signs of prosperity everywhere. There are impressive industrial plants, elaborate new shopping centers, and trim, modern sub-divisions. More important, the community leaders are alert, friendly, intelligent, and full of enthusiasm for the future.

Livonia, Michigan is simply a statistical victim of her own success. Her mushrooming industries were largely in the automotive field. Recent cut-backs caused substantial unemployment. But these temporary setbacks have only stimulated Livonia's leaders to redouble their efforts to accelerate their industrial diversification process.

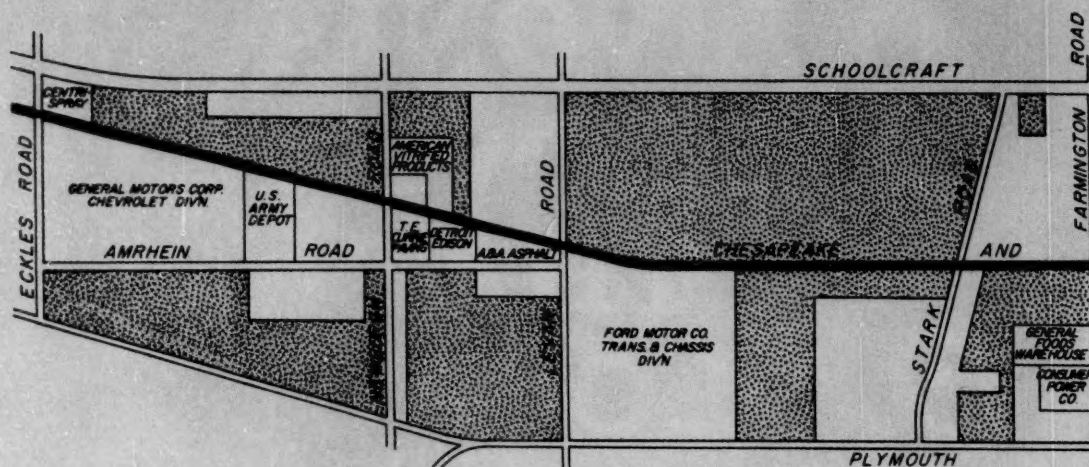
Here, then, is the story of Livonia, a community which in ID's opinion is neither depressed nor discouraged.

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## **Livonia — Built Around Industry**

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Looking first at the City, Livonia's boundaries run six miles East and West, and another six miles North and South. One of the outstanding features of the community is the city zoning. An Industrial Belt six miles long and one mile wide, is bisected laterally by the Chesapeake and Ohio Railway which runs just below the East-West center line of the city. The Industrial Belt is bounded on the north and south by broad four-



LEGEND: AVAILABLE INDUSTRIAL LAND

## INDUSTRIAL BELT

lane highways for easy access to downtown Detroit and major western cities.

The areas immediately north and south of the Industrial Belt are largely residential, with shopping centers either in operation or in the planning stages on the four corners of the City.

Looking next at City Government, a refreshing feature of Livonia is the far-sightedness of the local officials. Knowing that in a "depressed area," a progressive community is in need of detailed planning, they projected their future needs and are providing for them.

In 1950 when the city was incorporated the population was 17,534. The 1960 census placed the population figure at 66,702.

With the boom in population, it became evident that a Master Plan must be created to accommodate further growth. Immediately the City officials began working out expansion plans with special emphasis on industrial needs. Areas were set aside for industrial, commercial and residential use. Streets and expressways were mapped out years in advance. Parks, schools, libraries and

fire stations were located years ahead of their actual need. Water and sanitary systems were mapped out.

Despite its location in a "depressed area," the City is growing and its government officials are making every effort to aid this growth with constructive planning for the future.

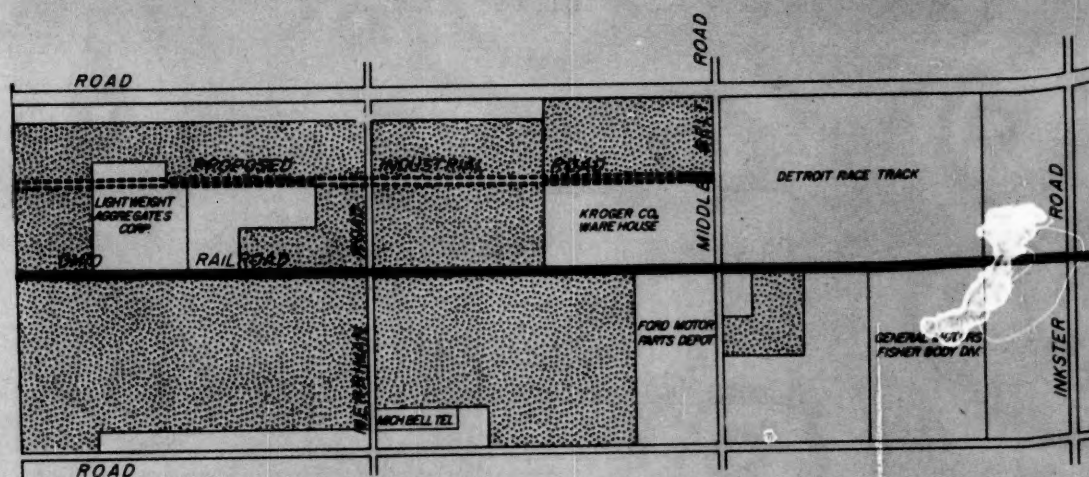
### Industrial Acceptance Enthusiastic

What about Industry's acceptance of a "depressed" area?

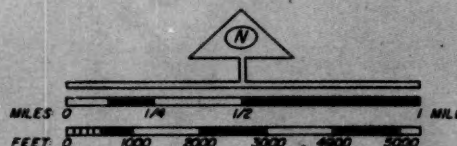
Industrialists scanning the area have first found Livonia's Industrial Belt offers them a "ready made" site.

Secondly, they were impressed by the way Livonia is actively working to bring in new industry.

Industrial acceptance of the city of Livonia has been expressed in many ways. Mr. John Sassak, President of Segmented Carbide Die, Inc., spoke of the ready labor force, eager to work in an area with "the ease of a country atmosphere, the excellent roads that eliminated traffic problems, the ample parking facilities and the numerous



## LIVONIA, MICHIGAN



other small conveniences that are appreciated by both labor and management."

"Livonia has a small town atmosphere with big city functions."

Another enthusiastic supporter of the city is Mr. James McCoy, Manager of the new Montgomery Ward Store.

"Our relations with the City couldn't have been better," he said.

Mr. McCoy pointed out how the City has assisted in their promotional campaigns and the excellent community acceptance of the store.

"My only problem now is making this season as good as the last one was."

Mr. D. F. Byers, District Sales Service Manager for General Foods told his experience. When General Foods was on the verge of moving their large distribution center to Livonia, one small piece of property had been overlooked in industrial zoning. There was no opposition to re-zoning, but time was important. City officials held "streamlined hearings" in order that the rezoning might go ahead with all possible speed.

"I don't think there is any place where the doors to industry are as open as they are right here," Mr. Byers stated.

These are just a few of the examples of the atmosphere that exists between industry and the City of Livonia.

Mayor William W. Brashear summed up the feeling when he said, "I think that our secret is the friendly understanding, and cooperative attitude on the part of city government. This is most essential as it leads to the type of action and implementation which produces the conditions and services industry requires which are otherwise known as healthy industrial climate."

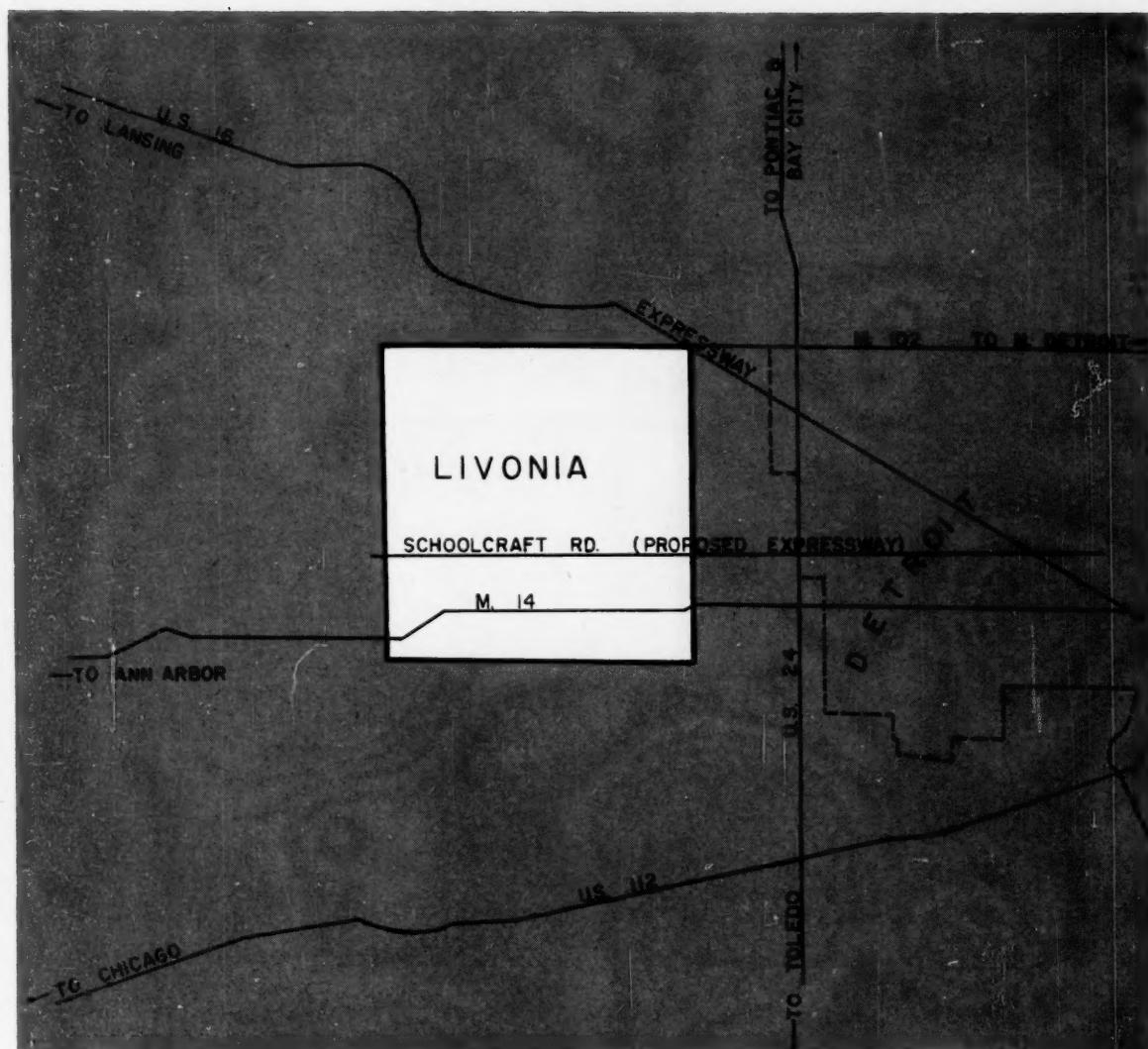
"We believe that this attitude and climate exists in Livonia."

### Markets On Your Doorstep

Livonia might be called, "A City with a Built-in Market."

Beginning with the City itself, Livonia residents





State and U. S. Hiways, along with local expressways offer manufacturers easy access to all major markets in the area. Livonia's Industrial Belt runs between Schoolcraft Road and State Highway 14. Dotted line indicates the western boundary of Detroit with it's market of some 3-million people.

have an average family income of \$7.1 thousand per year. This figure compares well with the state average of \$6.8 and the national average of \$6.4 per family.

The city also offers manufacturers over 3 million consumers in the Detroit metropolitan area centered less than five miles to the east.

Reaching out to a 300 mile radius, there are some 42 million consumers. The 300 mile radius includes Ohio, lower Michigan, Northern Indiana, the Ohio Valley of West Virginia and Kentucky, the western portion of Pennsylvania, Buffalo, New York, the eastern third of Wisconsin and most of the population of Ontario, Canada.

Livonia is also within a 300 mile radius of two

thirds of all the steel produced in the United States. A vast number of industrial machinery and machine tool manufacturers are also located in this area. A quick look at the map will point out the strategic location of Livonia with respect to the north central United States, and surrounding region.

### Plant Sites Built Around Transportation

Transportation to the surrounding markets is no problem since in addition to the excellent highway system running through Livonia, the Chesapeake and Ohio reaches through the center of the Industrial Belt, with switching yards located just west of the city limits. More switching and maintenance facilities are found in Detroit.

Mr. George D. Moffett, Jr., Industrial Commissioner for the Chesapeake and Ohio Railroad



pointed out that the C&O now has a full time supervisor assigned to this local area.

Mr. Moffett also spoke of the assistance available through the Industrial Development Department of the C&O Railway for new industries considering a site in Livonia.

In addition to the convenient rail facilities, two major airports are within a few minutes driving distance of Livonia. To the south lies the beautiful new Detroit Metropolitan Airport and to the west is the big Willow Run facility.

The shift of seven airlines from Willow Run to Detroit's Metro is expected shortly. When this shift is complete all major airlines will be operating from the new airport.

Giving the city access to world markets is the St. Lawrence Seaway, just a few minutes ride from Livonia to the Detroit docks. Tonnage in the past year, incidentally, has reportedly doubled.

### **Labor Adapted to Local Demands**

With current labor cut-backs in the automotive industry, Livonia's new industries are finding a ready supply of all types of labor, principally skilled & semi-skilled. Many of these are former auto workers, skilled in machine operation, and local industries have found the skills of these workers are readily adaptable to a wide variety of their own uses with a minimum of training required.

The U. S. Department of Labor bulletin **Area Labor Market Trends**, April 1961, refers to the Detroit metropolitan area as one of "substantial and persistent unemployment." The ratio of unemployment to the total labor force is now in excess of 12%.

These figures illustrate the abundance of ready labor for neighboring Livonia. Local manufacturers are utilizing the talents of these unemployed workers by placing them in their new plants.

These formerly unemployed workers are finding new homes in the City and are apparently planning to remain, since figures show that 98% of Livonia's citizens own their own homes.

With industry attracting so many new residents, Livonia's master plan calls for an expected population of 100,000 by the year 1965.

### **Utilities Plan With City**

With recent industrial growth in the Livonia area, utilities became of prime importance.

Furnishing electrical energy to drive the big plants through the entire area is the Detroit

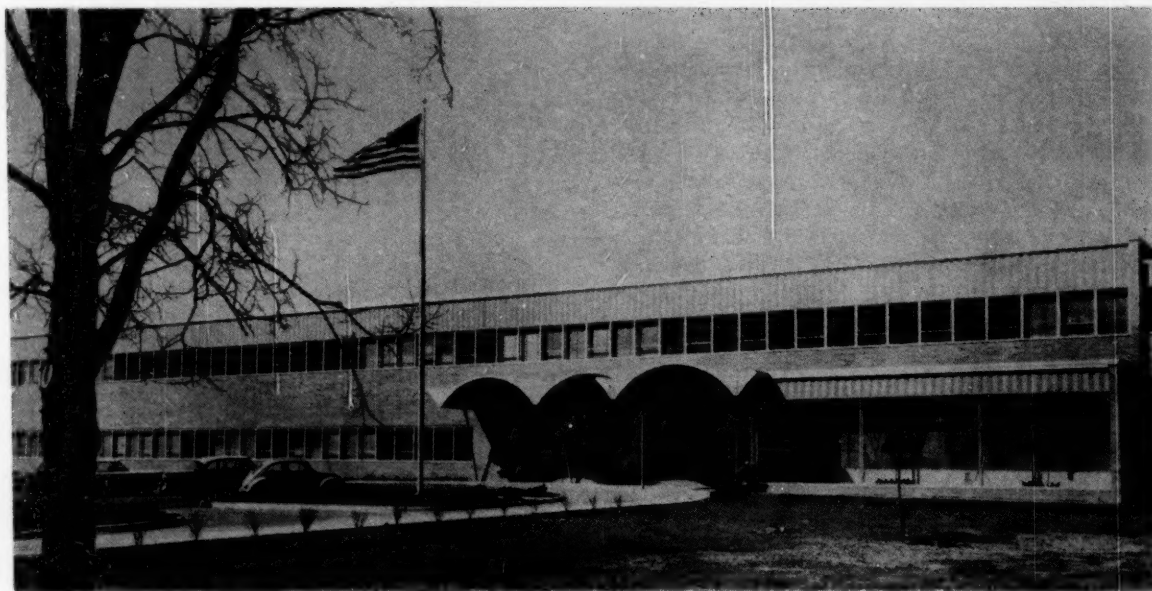


The Chesapeake and Ohio Railroad has extensive switching facilities located east and west of Livonia. Shown here is the Detroit Rouge-mere Yard to the east of the city. Located west of Livonia are the Plymouth Yards with equal facilities for storage, maintenance and routing of railroad traffic.

### **Edison Power Company.**

Mr. George B. Catlin, Director of Area Development of the Detroit Edison Company says, "There is plenty of electric power for industry, commerce and the home owner in Livonia. The area is served by six generating stations capable of producing four million kilowatts of power. The very large industries served by Detroit Edison in Livonia include two Ford Motor Plants and a General Motors plant. The Kroger Company operates one of the largest bakeries in the world. This speaks well for the continuity of electric service, its quality, its reasonable price and the services offered.

The Detroit Edison Company has unusually lib-



The new Consumer's Power Company building is an example of the type of handsome, new quarters found in Livonia's Industrial Belt. Built at a cost of \$1.4 million, this office contains 38 thousand feet of working space and serves as headquarters for 224 employees in the local area.

eral residential and commercial service program (which includes, for example, the exchange of burned out incandescent lamps for customers without additional charge). The Edison Company also maintains a division for the repair of many home appliances.

The rates and pertinent industrial information may be had through the company's Area Development Division, 2000 Second Avenue, Detroit 26, Michigan.

As a safety feature to home owners and industrialists alike, the Detroit Edison network consists of interlocking plants which cut in automatically whenever additional power is needed.

Livonia's gas supply comes from the Consumers Power Company, now operating out of a large modern building in the Industrial Belt. The new Livonia Service Center, on its 11 acre site, was occupied this year. Service from this site extends over 254 square miles and embraces 19 municipalities.

As further evidence of the area's growth, figures show that in the year 1950, 10,424 customers were served. By 1960 the number of customers had jumped to 43,500 and all major plants in the area were also served by Consumers Power Company.

The choice of Livonia for Consumers, new center again demonstrates the importance of this city as a key location in the great expansion program

underway west of Detroit.

Mr. Jud Huntley, District Commercial Manager for the Michigan Bell Telephone Company, also spoke of the rapid growth of Livonia in relation to his company's services.

"At the present time," he said, "200 employees are working in the Livonia area, servicing the 2,314 business customers, 26,104 main residents and the 434 PBX boards."

Michigan Bell has also planned ahead in its service to Livonia and it is estimated that present facilities will be adequate for anticipated growth through 1962.

Michigan Bell works closely to pre-plan new installations with architects, and their facilities allow underground wiring in newly developing sub-divisions.

While Michigan Bell has no Area Development Group, the company does offer aid to new industry through its own staff. The company will "loan" its tax experts, etc. to industries who might have problems setting up in their new location. Michigan Bell Telephone Company is definitely looking far ahead in preparing for their forecast 32,600 customers in 1963.

### Water Supply No Problem

Livonia's city officials are quick to point out the abundant water supply and sewage disposal facilities. Livonia's water is purchased from Wayne County. Sewage disposal is also handled by Wayne County. The city now has 15-inch, 36-inch and

## LARGEST TAXPAYERS OF LIVONIA AS SHOWN ON 1960 TAX ROLL

	<u>Total Valuation</u>	<u>Present City 5. Mill Tax (7.63 Tax Rate)</u>	<u>Home Rule 20 Mill Tax (30.52 Tax Rate)</u>	<u>Present Livonia Tax Saving to Industry</u>
General Motors Corp.	\$31,413,490.	\$239,680.	\$958,720.	\$719,040.
Ford Motor Company	27,805,890.	212,150.	848,600.	636,450.
Kroger Company	6,808,140.	51,946.	155,838.	103,892.
Detroit Edison Co.	3,046,840.	23,247.	92,989.	69,742.
Michigan Racing Assoc.	2,247,980.	17,152.	68,608.	51,455.
Montgomery Ward Co.	1,684,330.	12,851.	51,405.	38,554.
Henry Alper-Abe Green	1,542,490.	11,769.	47,076.	35,307.
Consumers Power Co.	1,542,060.	11,765.	47,063.	35,298.
A & P	92,300.	704.	2,816.	2,112.

Despite Michigan's somewhat unfavorable tax climate, here is visible proof that Livonia industry is treated fairly. Although industry may be taxed to the amount indicated under the State Home Rule 20 Mill Tax (done in several Michigan cities), Livonia is charging only the Present City 5 Mill tax. Firms listed here are the City's largest tax payers.

54-inch water mains supplying water. Local officials persuaded the City of Detroit to advance by five years the complete installations. Two pumping stations maintain the supply locally, and an additional pumping and storage unit will soon be built. This unit will be installed by the City of Detroit.

Recent figures show peak water consumption has reached a level of 39 million gallons in a 24 hour period, industries consuming 51 per cent of the supply.

Along with the water supply, the sewerage system is keeping abreast of Livonia's needs. A master plan for storm sewers was conceived in the early days of the city's growth and in line with the timetable of construction; the city now has over 75 miles of all types of sewer construction including lines as large as 13½ feet in diameter. The cost of the sewer system to date has been some \$20 million.

Here again planned growth has been in evidence with the city's proposed sewer system laid out through the the year 1982.

### **Livonia — Born of Industrial Diversification**

The beginning of Livonia's transition from a rural township to a thriving city was signaled in 1949 by the construction of the large General

Motors Hydromatic Transmission plant. Within a short time, the Ford Motor Company followed with its big parts depot and a year later the Michigan Racing Association constructed a multi-million race track — said by racing enthusiasts to be one of the finest in the country. By the summer of 1949, leading citizens of the township were ready to take the first step.

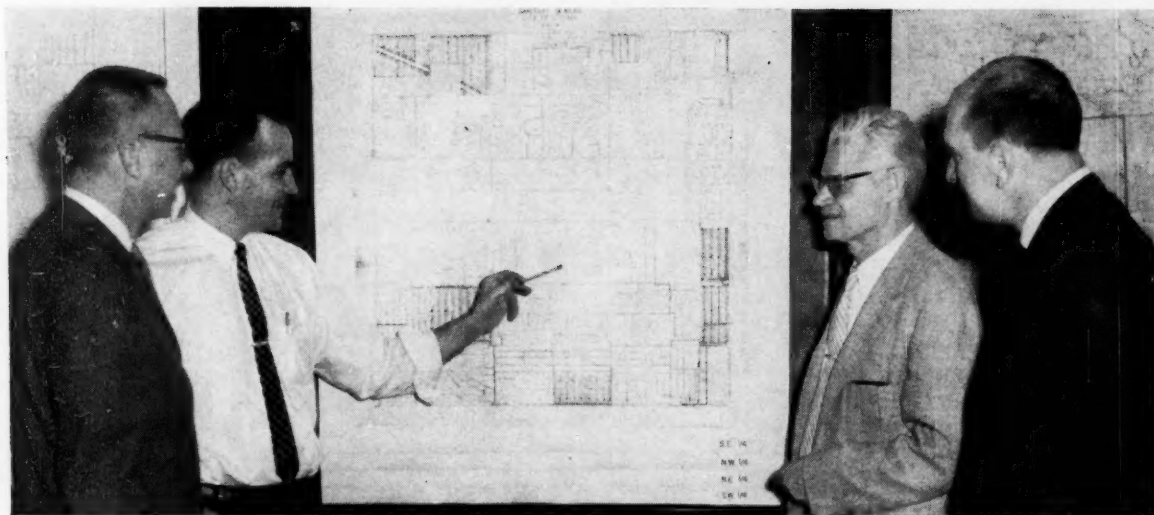
A petition was circulated and filed with the Wayne County Board of Supervisors to incorporate as a city. The planned municipality would cover 36 square miles and would insure single government for the area. Early in 1950, the township residents voted to incorporate and set up a charter.

As it exists today, the Livonia city government consists of a mayor, city clerk, city treasurer and city council. As part of the local government, there are also eight municipal departments: (1) public works (2) public safety (3) assessments (4) law (5) recreation (6) civil service (7) health and (8) civil defense.

A charter provision also placed a limitation of five mills on the city tax rate . . . the lowest tax ceiling in the state of Michigan.

In the midst of this surrounding area of unemployment is a sound financial policy. Evidence is the fact that under state law Livonia can borrow \$27 million, but at present is legally obligated for only \$1.5 million. Constant surveillance has been kept by the city government in order to provide the most effective service, with the least tax burden.





Consultation and planning are constantly taking place as shown above. Railroad facilities are being studied by (from left) George Moffett, Jr., Industrial Commissioner for the C & O Railroad, David R. McCullough, City Planner, William J. Strasser, Chief City Engineer, and Thomas L. Diak, Industrial Representative for the C & O Railroad.

As an example, the average home is assessed at \$4,451 with a city tax of approximately \$50.

In line with the financial operation of the city, a re-evaluation of tax assessments is now taking place. City officials are concerned with equalizing the tax burden so that various industries and home owners pay only their fair share.

In line with its "pay-as-you-go" fiscal policy, new buildings and equipment have been paid for as they have been acquired. Livonia has never engaged in deficit spending budgets and does not plan to do so in the future. In the fiscal year from December 1, 1959 to November 30, 1960, the city operated with \$3.5 million in operating revenue. This figure included income of \$3.2 million and a surplus balance of \$271,239.92 carried over from the previous year. Expenditures for the 1959-1960 year were slightly over \$3 million.

No special tax inducements are offered new businesses considering moving into the area. Budget director, Carrol Lock, analysed the situation with this comment, "When special inducements are offered in one case, someone else must carry the brunt of the tax load until the special inducement has ended. Therefore, the effect of any inducement would be lost within a short time."

### **Planned Growth More Than An Expression**

Although a common picture of a "depressed area" might be one in which all Public Works has stopped, crime was rampant, and the unemployed

multitudes lived in crumbling apartments, Livonia once again shows its initiative in moving ahead to accommodate its growing population.

One of the city's greatest tangible assets is the thoroughness and quality of the city's planning representatives.

David R. McCullough, City Planner, chatted about future plans as he leafed through dozens of city maps showing planned expansion of city services through the year 1980. All of Livonia's needs are being considered and construction of facilities is moving ahead on a rigid timetable basis.

"We are not afraid to change," is a phrase heard over and over again. Changes and progress are also reflected in other areas of the city government.

Livonia's police department has been enlarged to keep pace with the growing city. The force now consists of 61 officers and is augmented with civil defense officials and auxiliary policemen. Under the efficient guidance of chief, James N. Jordan, the force is constantly being trained in the latest scientific methods of crime detection, traffic control, and crime prevention. Officers are schooled in not only handling their own jobs, but also have a working knowledge of other departmental duties as well.

In another department, 1961 has already seen the completion of another new fire station in Livonia. The City's Fire Department now consists of 61 trained personnel and the force operates out of four strategically placed fire stations.

Another outstanding feature of the city of Livonia has been the establishment of the new



and modern St. Mary's Hospital. St. Mary's is a \$3.5 million, five story building housing 180 beds. A provision has been made to double this size in the future. With its staff of 114 doctors representing all major fields of medicine, St. Mary's hospital is definitely a plus factor in the community.

### Major Industries Lead The Way

Since its incorporation 11 years ago more than 700 business and industrial establishments have located in Livonia, producing materials, products and services.

General Motors and Ford started the trend with the establishment of the large and well landscaped Chevrolet Spring and Bumper plant and the Ford Transmission plant. Ford has since added a testing laboratory and GM has built its Fisher Body plant.

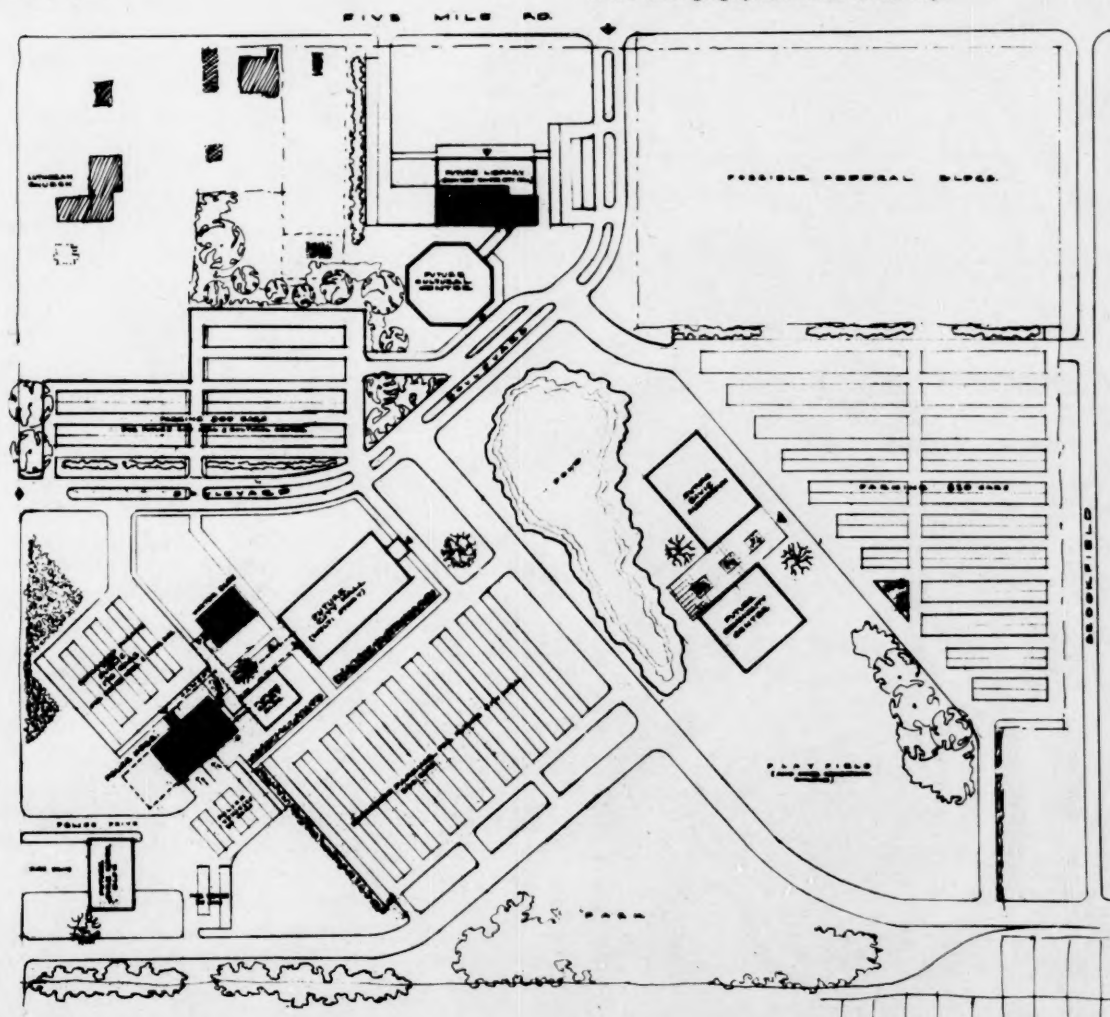
Another of the larger firms disregarding the "depression" of the surrounding area is the Kroger Company Retail Distribution Center. From its sprawling plant, the Kroger Company distributes its products to the entire area of northeastern Michigan. Processing of meat is one of the services performed in this plant.

The installation incidentally, is so large that tours of the buildings must be made in electric cars.

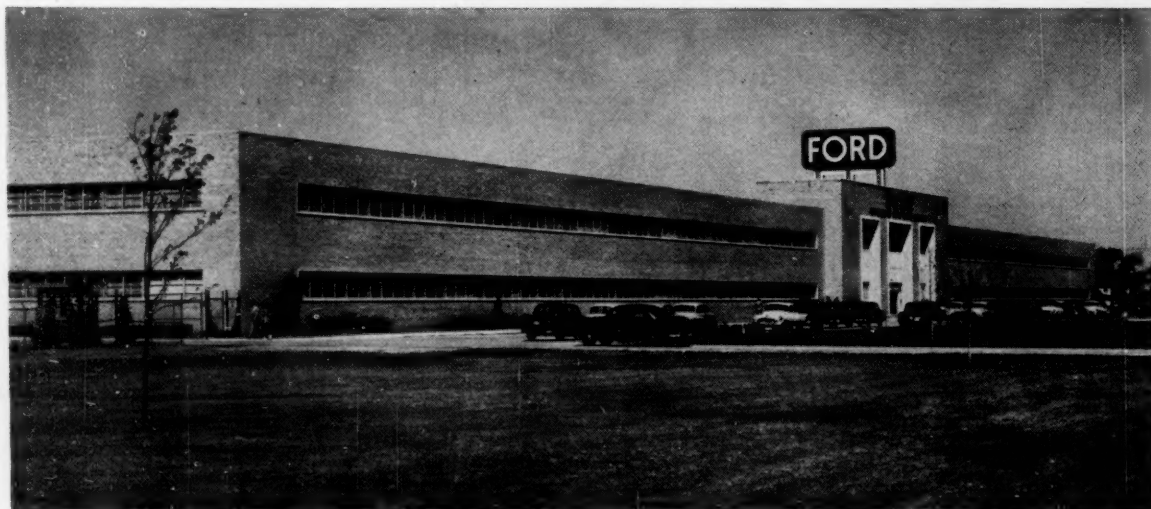
Again, the Livonia site was chosen because of easy accessibility to market centers being served in the state.

A bit farther down the Industrial Belt is the giant General Foods Distribution Center. From

Artists conception of the proposed Livonia Civic Center. Areas in black are already in use. Other buildings indicated are in the final stages of planning. The proposed Civic Center will be located almost in the exact geographical center of the City.



## LIVONIA



Livonia's Ford Motor Company Plant, one of two Ford plants in the Industrial Belt. This was one of the first plants to be located in the City. Large, well landscaped grounds reflect the pride of industry in this new facility.

An aerial view of the sprawling General Motors Fisher Body plant in Livonia's Industrial Belt. This is another of the City's early industries. Located just above the Fisher Body Plant is the Michigan Racing Association's Racetrack. Spectators can see both Thoroughbred and Harness racing in their respective seasons.



this location, lower Michigan, Ohio, and Indiana are served . . . 120 wholesale customer locations.

In picking a site for the plant, Mr. D. F. Byers, District Sales Services Manager said, "A three day limit was placed on transportation from the plant to the customer locations. After an intensive rail and highway survey, Livonia was selected as the best site location to supply the area."

Turning to another type of industry, Livonia's banking needs are well served. The National Bank of Detroit has branches in the City along with the Bank of Livonia. Complete banking services are offered in either of these two firms. Mr. Guy Spencer, Pres. of the Bank of Livonia reports that his bank works closely with major corresponding banks in Chicago and New York.

The city of Livonia is the site of one of the largest shopping centers in the state. "Wonderland," built on the site of Haggarty Air Field, boasts 65 stores and services. Wonderland's market area extends over nine counties and employs some two thousand persons. Wonderland is active in community relations and every year special promotions are planned to coincide with the City's activities. This month, Wonderland is presenting its second annual arts and crafts show. Featured will be a display of work by local artists.

Wonderland officials report excellent community acceptance to the center, a part of which may be due to the 129 thousand credit cards mailed to local citizens shortly before the center opened.

One of the outstanding features of the Wonderland Shopping Center is the new Montgomery Ward store. Manager James McCoy reports that this is one of the largest Montgomery Ward instal-



lations in existence, and is the prototype for new stores soon to be opened elsewhere in the country.

Several new services are now being offered at the store. One such convenience is the Accommodation Center where customers can cash checks, money orders, pay utility bills, obtain notary public seals and buy hunting and fishing licenses. The growth and progress of Livonia is definitely evidenced in the Wonderland Shipping Center.

During the past ten years, Livonia has also seen a marked rise in neighborhood stores and businesses. To date there are 36 barber and beauty shops, 11 building contractors, 4 bowling alleys, 27 laundries and dry cleaning establishments, 11 department and variety stores, 56 grocery and bakeries, 15 hardware stores and even a fur farm. The everyday needs of local citizens are well supplied by Livonia's merchants who refuse to believe themselves located in a depressed area.

### Cultural Growth A Factor

Sports, recreation and education are three important factors to Livonia citizens.

Nearby Detroit fills the area's cultural needs with its fine Symphony Orchestra, the latest Broadway Shows, Night clubs, Museums and the new Detroit Civic Center.

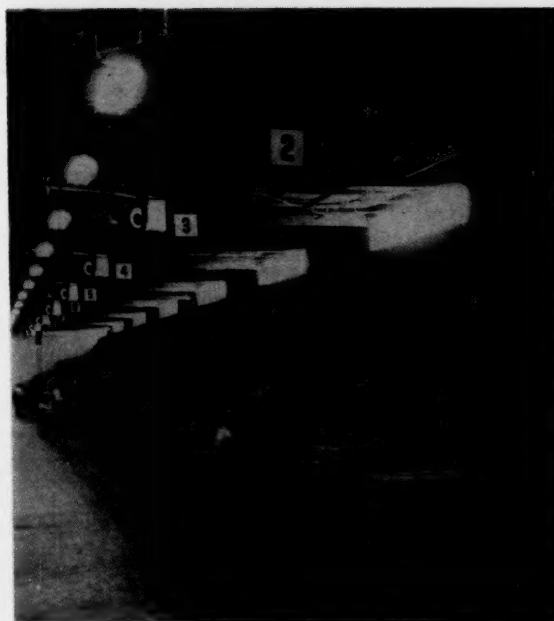
For the sports minded, Detroit is also the home of the Detroit Tigers Baseball team, the Lions Pro Football team and the Red Wings Hockey team.

15 miles to the West of Livonia, the University of Michigan is located at Ann Arbor. Regarded as one of the finest schools in the country, the University offers a well rounded program of education in both Arts and Sciences. Special men

Wonderland Shopping Center, the first of four proposed shopping centers in Livonia. In the foreground left is the mammoth Montgomery-Ward store, one of the largest in the country.

Wonderland officials are now discussing plans for enlarging the facilities of the center to make room for even more shops and services.

A rapid flow of goods and store items takes place in the Kroger Distribution Center in Livonia. Cars are unloaded along the inside rail sidings at the big plant. Their final destination may be in any of the stores in the entire northeastern Michigan area.







Madonna College, headquarters of the Felician Sisters is another of the beauty spots of Livonia. A liberal arts school for women, Madonna College is symbolic of the completeness of the cultural atmosphere of Livonia. The school is accredited by the North Central Association of Colleges and Universities.

should be made of the Schools of Medicine and Engineering.

Complete research facilities are also found at the University of Michigan, and are frequently being used by industry.

During Livonia's first decade as a city, seven church-sponsored schools sprang into existence. These schools were predominantly Lutheran and Roman Catholic. As time went by, however, public schools were enlarged and now public education in Livonia is being given the highest consideration by city officials.

In line with expansion plans in the local school system the City is moving ahead with plans to accommodate the vast increase of new students. Young citizens of the City are now served by 24 elementary, four junior and two senior high schools. A third high school is now under construction and additions are now being built to several of the existing junior high schools.

In addition to the primary and secondary educational system, Livonia also has Madonna College, a Liberal Arts School for Women.

Churches, approximately 40 in number, are spread throughout the city, with practically all faiths and denominations represented. Most of the churches in Livonia are active in the support of young people's programs.

It is also refreshing to find that so many of the City's residents have developed a wide program of cultural interests which will insure the intellectual and cultural growth of their city.

The City opened its first library over two years ago and already its use is rated third in the Wayne County Library system.

In addition to the library system, local citizens have also organized into the Livonia Redford Theater Guild, YWCA Lecture Series, and the Early Bird Travel Series, Youth Symphony Orchestra and Junior Orchestra.

These are just a few of the activities aimed at promoting the cultural growth of local residents. Programs of this type have caused new arrivals to pat young Livonia on the back.

Recreational programs for young and old are conducted by the Parks and Recreation Department. The department's 18 full-time employees are supplemented by part-time personnel for additional activities.

Among the most successful programs are Little League Football with 20 teams and Little League Baseball with 177 teams. With the attendance of parents, coaches and spectators, these leagues alone provide recreational facilities for thousands of local citizens.

Winter months find the Livonia Ski Club active with membership open to all residents and families over 18 years of age. Members meet twice a month presumably to discuss business as well as recent fractures.

Residents of Livonia are also able to take advantage of their proximity to Michigan's trout streams and fishing grounds. Nearby Lake Huron offers some of the world's finest beach resorts and Northern Michigan is well known among hunters for the abundance of wild game.

With the construction of the Mackinac Bridge



to Northern Michigan, local residents are within driving distance of the fishing, hunting, camping and touring facilities of upper Ontario.

At present, Livonia has 190 acres of city owned park land under development. The County also has several hundred more acres of park land in close proximity.

Future plans call for the further development of additional facilities such as artificial ice rinks, swimming pools, botanical gardens and nature trails. These future programs will make up the completely developed program for all ages and interested groups.

### I. D. Commission Enthusiastic

In keeping with Livonia's progressive attitude toward industry, and firmly convinced that the City has definite advantages despite its "depressed" location, an Industrial Development Commission is working to aid industry in locating here.

This commission first came into being in the winter of 1958. Members of the commission serve staggered terms with no compensation and are empowered to advise the mayor, city council and

city planning commission. The Group is also active in advertising the industrial opportunities offered.

The Industrial Development Commission encourages changes that might be necessary in zoning and services in order to attract new industry. The commission also works between existing industry and the City in solving any problems which might arise in the re-location of a plant in Livonia.

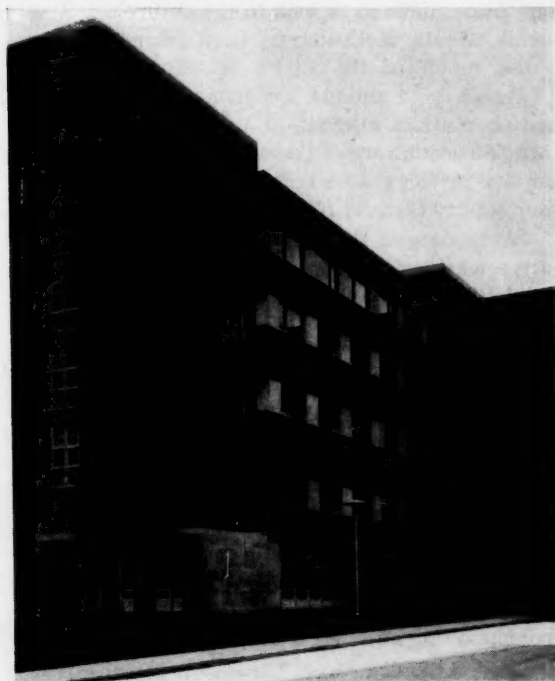
To illustrate this last point, one plant was on the verge of locating on another site because of the lack of a sewer system which was still under construction. When the members of the commission learned this, they immediately advised the city authorities and all work was channeled into extending the system to the proposed site.

As Mr. Thomas D. Heap, a member of the Commission commented, "We will not lose an industry because of the lack of proper sewerage."

Attributed to the Industrial Development Commission, is an atmosphere of harmony and good feeling between industry and the city.

Mr. John Sassak, of Segmented Carbide Die, Inc., leaned back in his chair and told his experience, "We needed water and we needed it on a certain day. Water connections were not finished to our site so we called the city for help. The

St. Mary's Hospital, a large and well equipped facility saw 289 of Livonia's newest residents enter the world in its first four months of operation. In keeping with Livonia's philosophy of pre-planning, St. Mary's Hospital has been designed to allow the addition of four additional floors in years to come.



Watching the thoroughbreds run is a popular pastime at Livonia's Wolverine Raceway. The track, built in 1950, has often been called the Racing Capitol of the Mid-West. In addition to receiving real estate taxes from the race track, the City also receives \$500 thousand in state racing revenue, a factor that helps keep a low city tax rate.



## OPPORTUNITIES IN LIVONIA

Here, in summary, is the ID staff's analysis of the most outstanding growth factors and opportunities in the Livonia area:

Industries requiring skilled and semi-skilled metal workers will find an abundance of well-trained labor in the Livonia area. Manufacturing firms are finding these trained workers readily adaptable to a wide variety of operations.

With large tracts of land available in the City's Industrial Belt, plants using assembly-line techniques will find Livonia worthy of investigation. Because of Livonia's location and proximity to Detroit, these same plants will find ready maintenance facilities close at hand.

Electronics and research-based industry should also consider the location in relation to the University of Michigan, located in nearby Ann Arbor. Livonia's geographic location, with its transportation facilities, also makes the City ideal for the distribution of goods and products to major markets in the North-East.

With the rapid growth of the City, builders and building suppliers are also finding a ready market for their goods and services within the City itself. Most important, Livonia offers a special "plus" to the expanding firm which attaches unusual importance to community spirit, local government attitude, initiative, and leadership.

## BASIC DATA REFERENCES

City of Livonia: Zoning Ordinance of the City of Livonia 1960, 42 pp; Charter of the City of Livonia 1950, 35 pp; Livonia, A City that Moves with America 1960, 32 pp; Livonia 1960 16 pp; Exploring New Frontiers in Recreation 1960, 49 pp.

U. S. Dept. of Labor:

Area Labor Market Trends, April 1961, 24 pp.

Michigan Economic Development Dept. Lansing: This is Michigan, 2nd printing, Sept. 1958, 20 pp.

The accompanying editorial survey of industrial location factors in the city of Livonia, Michigan was prepared under the auspices of the City of Livonia. The study was conducted by the editorial staff of ID and is published as a service to industry. Reprints of this study are available at no cost from the Office of the Mayor, City of Livonia, 33001 Five Mile Road, Livonia, Michigan.

Water Department ran temporary hoses to the plant the same day for us to use."

"Now, where else could you find service like that?"

Mr. Sassak went on to say that he knew he could call on the mayor at any time and freely discuss his industrial problems.

Livonia's Industrial Development Commission under the present leadership of Mr. Irving Bond is making every effort to cooperate with industry, both existing and proposed. All inquiries received by the Commission are promptly and efficiently handled.

The Commission realizes that any corporation considering a new plant site will have many factors to consider and the group makes every effort to help in the removal of any local barriers.

As has been mentioned in this article, industrial leaders have nothing but praise for the treatment received by city officials and townsmen. Most of this good inter-action is due to the efforts of the Industrial Commission and its staff of dedicated business men.

Livonia intends to continue with its growth, and with the help of new industry it will accomplish this purpose.

## "Planning" — Livonia's Secret

Although they are proud of their past, Livonians are more inclined to look to the future.

Mr. David McCullough, City Planner summarized much of the City's thinking as he said, "Livonia is a unique experiment in suburbanization, with a number of unusual features. Our officials are aware of the need for **planned** growth of city services. As a result of this thinking, came our Master Plan for future development."

"According to this Master Plan, sufficient areas are set aside for all our future needs. Our Industrial Belt is served by paved roads, the railroad, and all necessary facilities. This Industrial Belt is situated in a city whose population includes a significant number of highly skilled workers. It is also in close proximity to the vast industrial and commercial markets and natural resources of the Mid-West. The St. Lawrence Seaway also makes it possible for local manufacturers to compete in international markets."

Despite its location in a depressed area, Livonia's record over the past decade has been one of progressive growth, built around industry. In Livonia, Michigan, the welcome mat is ready for you.



# MANUFACTURERS RECORD

THE INTERNATIONAL SUMMARY OF PLANT LOCATION NEWS

ESTABLISHED 1882 VOLUME 130 NUMBER 7

By Arnett Custer

This month's most interesting plant locations were announced in widely-diverse industries.

**BURLINGTON, VERMONT.** General Electric Company's Missile Production Center expands into the Greater Burlington Industrial Corp.'s 24,100 square foot plant (see photo, ID February issue, page 77). GBIC's construction firm, Cynosure Inc. will add a 7,200 square foot high-bay wing to provide sufficient space for manufacture and assembly of the Air Force's Titan II missile Mark 6 re-entry nose cone. GE will occupy the building in December and production will begin as soon as research activities are completed in Philadelphia. Local GE manager C. H. Ridgley announced that 125 persons will work at the new plant by mid-1962.

**CHARLESTON, WEST VIRGINIA.** Food Machinery & Chemical Corp. purchased the former Naval Ordnance 197-acre industrial site for \$4.32 million. A \$multi-million chemical plant is planned for 1962. The Government built the existing 43-year old complex at a cost of \$55 million. Kanawha Valley Business & Development Corp. was instrumental in gaining an industrial tenant for the surplus property.

**OMAHA, NEBRASKA.** A \$750,000 macaroni plant will be built here by the fifty-year old Skinner Manufacturing Company. Fifty percent increase in production is slated at the new 86,000 square foot facility equipped at a cost of \$250,000. Firm president Lloyd E. Skinner cited positive location factors in Omaha "because of its proximity to the durum wheat supply" and good rail and river transportation also provide favorable grain shipping rates." The four-acre site was purchased from the Union Pacific Railroad.

**STOCKTON, CALIFORNIA.** Libbey-Owens-Ford Glass Company plans initial development of an 847-acre industrial site with construction of a \$10.5 million plant. By 1962, 230 employees will manufacture curved laminated glass. The 386,000 square foot structure will be located near several automotive plants and will have easy rail and truck access to large deposits of high-grade glass sand.

**CLEVELAND, OHIO.** Sprayon Products Inc. constructs an aerosol packaging plant in Bedford Heights, planning January occupancy. Investment of \$1.5 million will provide 85,000 square feet for integration of four of Sprayon's smaller operations. President J. G. Ellis said plans include employment of 175, three automated production lines with 200,000-can daily capacity, 400-foot rail siding, 6 truck loading docks and a laboratory, in addition to streamlined office facilities.

**EAST CHICAGO, INDIANA.** Inland Steel Company President John F. Smith, Jr. announced plans for two \$multi-million plants at the Indiana Harbor Works. Completion date is set for 1963; employment estimate is placed at 170. One-fourth of the Work's power requirement will be supplied from the new steam and electric power plant. A new foundry will furnish the quantity of ingot molds required at capacity production.

The following is a summary of major industrial plant locations in the United States, Canada and overseas as reported to **INDUSTRIAL DEVELOPMENT** during the month of April, 1961, by industries and industrial development organizations.

Each new plant meets one of the following minimum requirements: 10,000 square feet of floor space, \$100,000 building cost, 25 or more employees (warehousing facilities must meet one of the latter two requirements). Number of employees is indicated by the code: A (under 25); B (25-99); C (100-249); D (250-999); E (1,000 plus).

## ALABAMA

**Eufaula** — Harbison-Walker Refractories Co.; rotary kiln plant — calcining bauxite & kaolin clays. Oper. date: Fall 1961. \$1 million. (A).

## ALASKA

No Plants Reported.

## ARIZONA

**Kingman** — Vagabond Coach Mfg. Co.; mobile homes. Oper. date: Fall 1961. 50,000 sq. ft. (B).

**Nogales** — C. G. Conn Ltd.; saxaphones. Plans announced. 40,000 sq. ft. \$100,000. (C).

**Tempe** — Scottdale Fashions Inc., Paul D. Schulman, Pres.; jackets, apparel. Plans announced. 20,000 sq. ft. (C).

**Tempe** — Sportcraft Trailer Mfg. Co., Ray Allen, Pres.; mobile homes. In oper. (B).



## NEW PLANTS

### ARKANSAS

**Berryville** — Lee-Wald Garment Co.; apparel. In oper. 26,400 sq. ft. (C).

**DeWitt** — DeWitt Shoe Corp.; shoes. In oper. (C).

**El Dorado** — GroCord Rubber Co.; rubber shoe soles, etc. Plans announced. \$2 million. (C).

**Foreman** — Arkansas Cement Corp. Plans announced. \$7.5 million. (B).

**Magnolia** — Peace Flooring Co. Inc., T. W. Smith, Mfg.; mosaic wood block flooring. In oper. (B).

**Star City** — Byrd Mfrs.; women's & children's apparel. In oper. (D).

### CALIFORNIA

**Anaheim** — Northrop Aircraft Corp., Nortronics Div., Thos. H. Quayle, V. Pres. & Gen. Mgr.; eng. & admin. cntr. Oper. date: early 1962. 90,000 sq. ft. \$1.7 million.

**Brisbane** — Braun-Knecht-Heiman Co., Old Bayshore Hwy.; chem. & Sci. apparatus, mfg., whse., ofcs. 15-acre site. Plans announced. 235,000 sq. ft.

**Burlingame** — Etching Corp. of Calif., 865 Hinkley Rd.; electronic components. Plans announced. 20,000 sq. ft.

**Burlingame** — Northfield Mfg. Co., 1831 Old Bayshore Hwy.; metal stampings. Plans announced. 10,000 sq. ft.

**City of Industry** — Crown Zellerbach Corp.; corrugated shipping containers. Under constr. 110,000 sq. ft.

**Los Angeles** — Carborundum Co. (Gen. Clinton F. Robinson, Pres.) & Subs., Pacific Abrasive Supply Co., 2240 S. Yates Ave.; abrasive serv. cntr. In oper. 75,000 sq. ft. \$1.5 million.

**Los Angeles** — LeFiell Mfg. Co., L. K. LeFiell, Pres., 3359 Packers Ave.; tubes, missile ind'y. & commercial. Oper. date: June 1961. 30,000 sq. ft.

**Corona** — Aluminum Co. of America; aluminum doors, windows, etc. Plans announced. (D).

**Encinitas**, Clayton Jack Ind. Prk. — Pan Technics Inc.; Optics. Oper. date: July 1961. 12,000 sq. ft. \$175,000.

**Goleta** — Elliott & Eischen, Hollister Ave. at Santa Barb. Mun. Airprt.; milk proc. 30,000 sq. ft. (lease).

**Inglewood** — Crawford & Schroeder Mfg. Co., 644 Isis Ave.; ind'l. woodworking & furn. Oper. date: May 1961. 15,000 sq. ft.

**Lathrop** — Libbey-Owens-Ford Glass Co., Curtis W. Davis, Exec. V. Pres.; curved laminated glass. Oper. date: early 1962. 874-acre site. 386,000 sq. ft. \$10.5 million. (C).

**Martinez** — Fibreboard Paper Products Corp., E. W. Carey, Pres.; asphalt roofing. Oper. date: late 1961. \$1.5 million.

**Martinez** — Shell Oil Co., R. S. Douglass, Mgr.; asphalt prod'ts. Plans announced. \$1 million.

**North Long Beach** — Permanent Filter Corp., Gen. Roger M. Ramey, USAF-Ret., Pres.; missile ind'y. filters. Oper. date: July 1961. 50,000 sq. ft. \$600,000.

**Palo Alto** — Clotran Pacific, Rolf Grebmeier, Pres.; semiconductor ind'y. tools & mach'y. Oper. date: Nov. 1961. 20,000 sq. ft. (move). \$200,000. (A)

**Palo Alto**, Stanford Ind. Prk. — Fairchild Semiconductor Corp. (Div. Fairchild Camera & Instrument Corp.), Dr. Rob't. N. Noyce, V. Pres.; res. lab. Plans working. (D).

**Palo Alto** — General Mills, Sperry Oper., Burton Roberts, V. Pres., Gen. Mgr., 730 Welch Rd.; bakery prod'ts. lab. ofcs. Oper. date: Nov. 1961. 218-acre site. 31,000 sq. ft. (move). \$500,000. (C).

**Palo Alto** — Magi-Dyes Co., 1805 Bay Rd.; leather dyes. 16,000 sq. ft. (lease).

**Santa Ana** — Allergan Corp., Gavis S. Herbert Jr., Pres.; ophthalmic drugs, admin., labs, display. Oper. date: Oct. 1961. 30,000 sq. ft. \$350,000.

**San Carlos** — Price Enterprises, Termi-

nal Way; pkg., mfg. & whse. Plans announced. 10,000 sq. ft.

**San Diego** — Cubic Corp., Walter Zable, Pres.; res. & dev. Oper. date: Aug. 1961. 14-acre site. \$1.2 million. (E).

**San Marcos** — Librascope Div., Gen'l. Precision Inc., W. E. Bratton, Pres.; computers, automatic controls. Oper. date: Sept. 1961. 30-acre site. 24,000 sq. ft.

**S. San Francisco**, Starlite Ind. Prk. — Emanuel Mfg. Co.; store fixtures. Plans announced. 60,000 sq. ft.

**S. San Francisco**, Airport Blvd. Ind. Prk. — S. K. Wellman Co., G. F. Mathews, Branch Mgr., 508 Airport Blvd.; metallic friction mater., sls. & distr. Oper. date: June 1961. \$200,000.

**Sylmar** — Electrosolids Corp., Gerald J. Widawsky, Pres., 12740 San Fernando Rd., N.; admin., eng. labs, prod'n., etc. Under constr. 5-acre site. 25,000 sq. ft.

**Torrance** — C. P. Hall Co., 444 Alaska Ave.; paint, plastics, optical, glass ind'ies, chem. & raw mater., ofc. & whse. Oper. date: July 1961. 2.2-acre site. 25,000 sq. ft.

**Vero Beach**, S. Dixie Ave. Ind. Prk. — Precision Scientific Co.; precision sci. res. & proc. apparatus. Plans announced. 9-acre site. 30,000 sq. ft. (D).

### THE TOP TEN

The following ten states ranked highest in new plant announcements published in INDUSTRIAL DEVELOPMENT January through June, 1961. The figure to the right represents each state's actual six-month total.

1. NEW YORK	123
2. TEXAS	97
3. ILLINOIS	96
4. OHIO	86
5. MASSACHUSETTS	78
6. CALIFORNIA	77
7. FLORIDA	61
7. NORTH CAROLINA	tied
9. PENNSYLVANIA	tied
9. NEW JERSEY	52

### COLORADO

No Plants Reported.

### CONNECTICUT

**Bethel** — The Kanthal Corp., Erik Haglund, Pres.; elec. wire prod'ts. Plans working. 14,400 sq. ft. \$150,000.

**Bloomfield** — Norlee Aluminum Products; aluminum doors, awnings, siding. Oper. date: July 1961. 43,000 sq. ft. \$300,000. (B).

**Wethersfield** — Canada Dry Bottling Co.; carbonated beverages. Under constr. 19,000 sq. ft.

### DELAWARE

No Plants Reported.

### DISTRICT OF COLUMBIA

No Plants Reported.

### FLORIDA

**Apalachicola** — Fla. Seafood Canning Co. Inc., Hercules George, Mgr., seafood proc. Oper. date: Aug. 1961. \$500,000. (C).

**Belle Glade** — Cuban-American Sugar Corp., Claude E. Wiley, Pres.; sugar. Oper. date: Oct. 1961. \$2.5 million. (C).

**Brooker** — Fla. Hydrocarbons, W. J. Bowen, Pres.; liquid hydrocarbon extraction. Oper. date: Spring 1962. \$7 million. (B).

**Carabelle** — Econo-Flo Flour Service (Subs. Western Star Milling Co.), Dick Heigle, Supt.; flour distr. In oper. 350,000 sq. ft. (B).

**Cocoa Beach** — Aerospace Corp., Bob Eley, Pers. Mgr.; missiles & components — res. & testing. In oper. (C).

**Deland** — Hurricane Trailer Co., Lee Nichols, Gen. Mgr.; boat trailers, light metals. In oper. 51,000 sq. ft. (B).

**Eustis** — Florida Fiber Glass Corp., J. A. Goodson, Pres.; fiberglass prod'ts. Oper. date: 1961. (B).

**Ft. Lauderdale** — Apex Woodworking Co., Hans G. Engebresten, Pres.; kitchen & stove fixtures. In oper. 2,800 sq. ft. (B).

**Hialeah** — Magnesium Co. of America, Mr. Christiansen, Pres.; metal fab. In oper. 85,000 sq. ft. (B).

**Hialeah** — Sealy Mattress Co., 601 W. 20th St.; bedding. In oper. 25,000 sq. ft.

**Hollywood** — J. W. Bayly & Son Inc., H. F. Bayly, Brd. Chm.; uniforms. Oper. date: Oct. 1961. 10,000 sq. ft. (B).

**Hollywood** — New York Brassiere Co., Sidney Sugarman, Pres.; women's undergarments. In oper. 6,000 sq. ft. (B).

**Hollywood** — U.S. Aluminum Products Corp. & U.S. Aluminum Windows Corp., C. F. Hayes, Pres. & Wm. Welsh, Exec. V. Pres.; windows, doors, etc. In oper. 35,000 sq. ft.

**Jacksonville** — American Motors Corp., F. S. Johnsen, Zone Mgr.; reg'l. ofc. & distr. In oper. 33,000 sq. ft. (B).

**Jacksonville** — Cleveland Electric Co., W. F. Aberly, Offl.; sheet metal prod'ts. In oper. 25,000 sq. ft. (D).

**Jacksonville** — Universal Atlas Cement Co., Wm. Slate, Offl.; reg'l. distr. cntr. Oper. date: Fall 1963. \$1.5 million. (C).

**Jacksonville** — W. M. Corp., W. L. Rives, Pres.; stainless steel piping. In oper. 2,400 sq. ft. (B).

**Jacksonville** — Winn-Dixie Inc., Bert Thomas, Offl.; liquid & powdered detergents. Oper. date: Oct. 1961. \$250,000.

**Lake Placid** — Tropical Farms Div., Hardee Farms International, W. Reeves, Mgr.; veg. proc. Oper. date: Jan. 1962. 36,000 sq. ft. (C).

**Miami** — Page Fashions Inc., Abe Bernstein, Pres.; dresses & sportswear. In oper. (B).

**Neptune Beach** — Southern Materials Co. of Fla., John B. Baines, V. Pres. & Gen. Mgr.; ready-mixed concrete & masonry blocks. In oper. Multi-acre plant. (C).

**Oakland Park** — Systems Engineering Laboratories, Wm. W. Dodgson Jr., Pres.; custom-designed data systems. Oper. date: 1961. 3,200 sq. ft. (B).

**Ocala** — Benbo Packing Co., B. F. Megehee, Pres.; meat processing. In oper. 10,000 sq. ft. (B).

**Okeechobee** — Ace Truss & Hardware Co. Inc., Wm. A. Reid, Pres.; wooden roof trusses & metal plates. Oper. date: 1961. \$350,000. (C).

**Orlando** — Astronics of Fla. Inc., Alfred R. Gray, Exec. V. Pres.; space electronics — eng'ng. Oper. date: 1961. 6,000 sq. ft. (B).

**Orlando** — Bowman & Assoc., J. A. Bowman, Pres.; plastic prod'ts. In oper. 10,000 sq. ft. (B).

**Orlando** — Coca-Cola Co.; coca-cola syrup. Oper. date: 1961. 125,000 sq. ft. (C).

**Orlando** — Houdaille-Span Inc., Russ Simmons, Mgr.; pre-stressed concrete prod'ts. In oper. 6,000 sq. ft. (C).

**Pahokee** — Osceola Farms Co., Vermilian Sugar Mill; sugar. Oper. date: Oct. 1961. \$3.5 million. (C).

**Palm Beach Gardens** — Fla. East Coast Bottling Inc., Albert Law Jr., Pres.; bottled soft drinks. Oper. date: 1961. 2-acre site. (B).

**Pompano Beach** — Sun-Sentinel, T. T. Gore, Pres.; newspaper publ. In oper. 20,000 sq. ft. (B).

**St. Petersburg** — General Telephone Directory Co., Walter L. Phillips, Offl.; publ. In oper. 5,400 sq. ft. (B).



**Vero Beach** — Precision Scientific Co.; precision scientific res. & proc. apparatus, jet-prop.-boat testing. Oper. date: 1962. 30,000 sq. ft. (D).

## GEORGIA

**Albany** — Georgia Power Co.; Plant Mitchell generating unit. Plans announced. \$22 million.

**Atlanta, Fulton Ind'l. Dist.** — Deran Confectionery Co.; candy mfg. & whse. Plans working. 50,000 sq. ft. (A).

**Atlanta, Fulton Ind'l. Dist.** — Empire Laboratories; sanitary chems. 13,000 sq. ft. (B).

**Atlanta, Fulton Ind'l. Dist.** — Printpak Inc., J. E. Love Jr., Pres.; flexible pkg. mater. Plans working. 40,000 sq. ft. (B).

**Atlanta** — Radiation Technology Inc.; electronics. Oper. date: Summer 1961. (B).

**Atlanta, Fulton Ind'l. Dist.** — Rayloc (Div. Genuine Parts Co.), Carlyle Fraser, Pres.; rebuild auto parts. In oper. 72,000 sq. ft. (D).

**Bainbridge** — Jackson Tubing & Conduit Co., Horace B. Jackson, Offl.; elec. tubing & rigid conduit. Constr. date: Summer 1961. 74,000 sq. ft. (C).

**Baxley** — Appling Cnty. Factory; dresses. In oper. (B).

**Baxley** — Filtered Resin Products Co.; plastic emergency shelters. Under constr. 24,000 sq. ft. (B).

**Conyers** — Lifetime Foam Products Inc., Maxwell Staffin, Pres., Rockdale Ind'l Blvd.; springs & mattresses. Under constr. 21,000 sq. ft. (A).

**Cordele** — Glaser Bros.; men's pants. (exist. bldg.) (C).

**Grantville** — Applied Fiber Co.; thread. 29,000 sq. ft. (lease).

**Hartwell** — National Vulcanized Fibre Co. Plans announced. 32,000 sq. ft. (B).

**Hogansville** — Pen Handles Inc., Lucius Arnold, Plnt. Mgr.; wooden items. Plans announced. (B).

**Lavonia** — Lavonia Industries Inc.; apparel. Under constr. 8-acre site. 34,000 sq. ft. (D).

**Leesburg** — Lee Cnty. Mills Inc., Donald Gold, Mgr. In oper. 30,000 sq. ft. (C).

**Louisville** — Burns Tools Co. (merger with Draper Corp.); chain saws. Oper. date: late 1961. (C).

**Tallapoosa** — Darsey Mfg. Co., J. F. Darsey, Pres.; boys', men's trousers. In oper. \$100,000. (B).

**Waycross** — Osceola Fruit Distributors, Kenneth Ashley, Mgr.; orange juice proc. & distr. 10,000 sq. ft. (lease). (A).

## HAWAII

No Plants Reported.

## IDAHO

**Nampa** — Western Idaho Potato Growers Inc., Cecil E. Kent, Gen. Mgr.; frozen French-fries. Plans working. \$350,000. (C).

## ILLINOIS

**Chicago** — Armour & Co., 8849 S. Greenwood Ave.; ofcs., storage. 16,000 sq. ft. (lease).

**Chicago** — Auto Radiator Mfg. Co. & Auto Lamp Mfg. Co., 5445 N. Elston Ave.; auto access. & equip. Oper. date: Oct. 1961. 100,000 sq. ft.

**Chicago** — R. W. Borrowdale Co., 250 W. 83rd St.; commercial cameras. 24,000 sq. ft. (exist. bldg.)

**Chicago** — Bulk Terminals Co., (Subs. Union Tank Car Co.) E. A. Locke, Jr., Pres., Lake Calumet Harbor; bulk liquid storage terminal. Plans announced. 177-acre site. \$17 million.

**Chicago** — Jetron Mfg. Co., 4310 N. Kedzie Ave.; electronic components. 16,000 sq. ft. (exist. bldg.).

**Chicago** — Lamcor Inc., 3840 W. Taylor St.; pkg. 18,000 sq. ft. (move).

**Chicago** — National Biscuit Co.; bakery. Oper. date: late 1962. 500,000 sq. ft. (D).

**Chicago** — R. S. Owens Co. Inc., 5535-45

Lynch St.; trophies. 35,000 sq. ft. (exist. bldg.); 20,000 sq. ft. under constr.

**Chicago** — Skild Mfg. Co., Bond St. at Higgins Rd.; precision machine parts. Oper. date: late Summer 1961. 10,000 sq. ft.

**Franklin Park** — Roberts Sash & Door Co., 11050 W. King St.; bldg. mater. ofc. & whse. Oper. date: Summer 1961. 50,000 sq. ft.

**Geneva** — Carlson Tool & Machine Co., Gary Lane; brush-mfg. mach'y. Under constr. 19,000 sq. ft.

**Millford** — Nachman Corp., Fred A. Nachman Jr., Pres.; bedsprings. Oper. date: mid-summer 1961. 75,000 sq. ft. \$500,000.

**Northlake** — Tousey Varnish Co., Carl R. Heagstedt, Pres.; paint & resin. Under constr. \$2.6 million.

**Pinckneyville** — Perry Metal Products Co. Inc.; hvy. steel prod'ts. Plans announced. 130,000 sq. ft. (D).

**Rockdale** — Universal Glass Products Inc., Bernard Sachs, Pres.; glass containers. Plans announced. 280,000 sq. ft. (exit. bldgs.) \$325,000. (C).

## INDIANA

**East Chicago** — Inland Steel Co., John F. Smith Jr., Pres.; foundry & power plant. Oper. date: 1963. \$Multi-million. (C).

**Madison** — Reliance Electric & Engineering Co. Plans announced. (D).

## IOWA

**Des Moines** — Interstate Bag Co., Marvin Pomerantz, Pres., 2201 Bell Ave.; multi-wall paper bags. Oper. date: Aug. 1961. (B).

## KANSAS

**Olathe** — Solar Window Co., L. E. Middleton & R. O. Weston, Dirs.; steel & aluminum windows, doors. Plans announced. (B).

**Wichita** — Empire Mfg. Co., Dayton Young, Pres., 3939 Maple; footscrapers, metal prod'ts. Plans announced. (B).

## KENTUCKY

**Bardstown** — Barton Distilling Co.; whiskey whse. In oper. (D).

**Dix Dam** — Kentucky Utilities Co., F. I. Fairman, Pres.; elec. gen. unit. Oper. date: June 1963. \$17.5 million. (A).

**Junction City** — Fram Corp., Vernon A. Johnson, V. Pres.; carburetor air cleaner cartridges. In oper. (B).

## LOUISIANA

**Geismar** — The Borden Co., H. W. Comfort, Pres., 736 Lake Ave., Greenwich, Conn.; synthetic methanol. Oper. date: July 1962. 9,180 sq. ft. \$14 million. (B).

**Geismar** — Monochem Inc., E. S. Ebers, Pres., 350 Madison Ave., N.Y.C., N.Y.; acetylene. Oper. date: Aug. 1962. \$22.13 million. (C).

**Houma** — Shield Coat Inc., French M. Jordan, Pres.; plastic coatings. In oper. 19,800 sq. ft. \$214,000. (B).

**Morgan City** — Cargill Inc., Erwin E. Kelm, Pres., Minneapolis, Minn.; salt-crushing, sizing & processing. Oper. date: Apr. 1963. \$819,200. (B).

**Natchitoches** — Timberline Mfg. Inc.; finished furniture. In oper. \$68,000. (B).

**Oakdale** — Heyden Newport Chem. Corp., J. K. Lindsay, Pres., 342 Madison Ave., N.Y.C. 17, N.Y.; crude oleoresin — processing. Oper. date: Aug. 1961. \$135,000. (D).

**Ponchatoula** — Modern Maid Food Products Mfg. of La. Inc.; breeding & batter mixes. Oper. date: June 1961. \$260,870. (B).

**Slidell** — Inter-American Felt Mills, Inc., Byron Blanco, Pres., 4516 Desire Dr., New Orleans; process-dry roofing felt. Oper. date: July 1961. 9100 sq. ft. \$106,000. (A).

**Tallulah** — Madison Grain Co., Russell Petersen, Secy.-Treas.; grain elevator. In oper. \$302,250. (A).

## MAINE

**Auburn** — Structural Concrete Corp.; prestressed concrete. In oper. \$2 million. (B).

**Augusta** — Gouverneur Iron Works Inc.; iron. Oper. date: Summer 1961. (B).

**Brunswick** — Maine Shoe Corp.; shoes. Oper. date: Summer 1961. 48,000 sq. ft. (C).

**Fryeburg** — Aeronautical Icing Research Labs.; res. & dev. prod'ts. In oper. (B).

**Saco** — Allied (Saco) Hampshire Footwear Corp.; shoe-soling mater. Oper. date: Fall 1961. 100,000 sq. ft. (D).

**South Portland** — Ward Industries Corp.; missile parts, nuclear submarines, vending machines. Purchase of Portland Ind. Corp. in oper. 200,000 sq. ft. (3 exist. bldgs.). (D).

## MARYLAND

**Adamstown** — Vim Laboratories. In oper. 5-acre site. 65,000 sq. ft. (exist. bldg.).

**Baltimore** — Maryland Workshop for the Blind, Wm. S. Ratchford, Supt., 2901 Strickland St. 35,000 sq. ft.

**Baltimore** — Southern Galvanizing Co., Dr. I. B. Golboro, Pres., Cowen & Whistler Aves.; hot dip galvanizing ofc. & whse. Under constr. 25,000 sq. ft.

**Owings Mills** — Maryland Cup Corp., Arthur H. Shapiro, Pres.; paper containers, home ofcs., mfg. & whse. Plans announced. 24-acre site. 330,000 sq. ft. \$Multi-million.

## MASSACHUSETTS

**Avon** — J. J. Taylor Co.; distr. whse. Oper. date: June 1961. 15,000 sq. ft. \$100,000. (B).

**Beverly** — Diaphragm Industries Inc.; diaphragm ind. In oper. 15,000 sq. ft. (move). (B).

**Cambridge** — Arthur D. Little Inc.; res. & dev. Oper. date: June 1961. 75,000 sq. ft. \$1.4 million. (B).

**Fall River** — Tioga Sportswear Inc.; apparel. Oper. date: July 1961. 60,000 sq. ft. (move). (C).

**Fitchburg** — Yankee Plastics Inc.; plastics. Oper. date: July 1961. 45,000 sq. ft. (move). (B).

**Natick** — U.S. Gov't. Atomic Energy Comsn.; radiation lab. Plans announced. 25,000 sq. ft. \$1.75 million. (C).

**New Bedford** — Elco Dress Corp.; apparel. Plans announced. 50,000 sq. ft. (move). (C).

**Salem** — Duchess Footwear Inc.; shoes. Oper. date: June 1961. 50,000 sq. ft. (move). (C).

**Waltham** — Hansen-MacPhee Engineering Co.; whse. & ofc. Plans announced. 50,000 sq. ft. (B).

**Waltham** — Packaging Frontier Inc.; whse. Oper. date: June 1961. 15,000 sq. ft. \$100,000. (B).

**Webster** — Pac-Tron Inc.; plastics. Oper. date: Aug. 1961. 20,000 sq. ft. (B).

**Wilmington** — Webtex Corp.; adhesives. Oper. date: July 1961. 30,000 sq. ft. \$250,000. (C).

**Wrentham** — Hubbard Tool & Gage Co.; missile parts. In oper. 30,000 sq. ft. (exist. bldg.). (B).

## MICHIGAN

**Chelsea** — Viking Pool Corp., Rob't. Twining, Pres.; fiberglass pool linings & tile for pool tops. In oper. 12,840 sq. ft. (B).

**Detroit** — Carroll Container Corp., Hazen J. Carroll, Pres.; corrugated shipping containers. In oper. 40,000 sq. ft.

**Detroit** — Victor Paint Co., Harold S. Victor, Pres.; paint. In oper. 20,000 sq. ft. (A).

**Grand Rapids** — Allied Corrugated Container Co. (Div. Crandon Paper Mills Inc.), Hy Sweet, Pres.; corrugated containers. In oper. 86,000 sq. ft. (B).

## NEW PLANTS

**Kalamazoo** — Dura Bilt Homes Inc.; pre-fab. homes. In oper. 70,000 sq. ft. (C).  
**Mt. Clemens** — Fabricators Inc., Burl Woodburn, Pres.; insulation & trim for auto ind. In oper. 45,000 sq. ft. (B).

**Port Huron** — Port Huron Machine Products Co., H. A. Decker, Pres.; machine prod'ts. Plans announced. 10,000 sq. ft. (A).

**St. Joseph** — Industrial Rubber Goods Co., V. Palenske, Pres.; molded & extruded rubber prod'ts. Under constr. \$100,000. (B).

### MINNESOTA

**Cloquet** — Weyerhaeuser Co., Shipping Container Div.; corrugated boxes. In oper. 75,000 sq. ft. (B).

**New Hope, Science Industry Park** — Turbomatic Inc., Willis K. Drake, Brd. Chm.; water softeners. In oper. 15,000 sq. ft. \$150,000.

### MISSISSIPPI

**Brooksville** — National Glass Products, Inc., S. B. Barham, Pres.; metal picture frames, mirrors. Plans announced. 20,000 sq. ft. (B).

**Senatobia** — Chromcraft Inc., Andrew L. Stone, Pres.; dinette furn. Plans announced. 240,000 sq. ft. (D).

**Terry** — Fireproof Products of Miss. Inc.; roof decking. Plans working. 25,000 sq. ft. \$290,000. (B).

### MISSOURI

**Kansas City** — Webb Belting Co.; power transmission & farm equip. In oper. 25,000 sq. ft.

**Lemay** — Muschong Metal & Mfg. Co.; mech. sash operating devices. In oper. 12,000 sq. ft.

**Meta** — Iberia Mfg. Co.; Marine Corps prod'ts. (C).

**St. Joseph** — Continental Can Co. Under constr. 35,000 sq. ft. \$2 million. (B).

### MONTANA

No Plants Reported.

### NEBRASKA

**Omaha** — Skinner Mfg. Co., Lloyd E. Skinner, Pres., 69th & F Sts., macaroni. Plans announced. 86,000 sq. ft. \$750,000.

### NEVADA

No Plants Reported.

### NEW HAMPSHIRE

No Plants Reported.

### NEW JERSEY

**Clifton** — Sun Chemical Co., Ampruf Paint Div., Getty Ave.; ofc., mfg., whse. Under constr. 3-acre site. 48,168 sq. ft.

**East Windsor** — Radio Corp. of America, Astro Electronics Div.; environmental testing lab. Plans announced. 16,800 sq. ft.

**Edison** — Mobile Chemical Co.; chem. res. & dev. center. Plans announced. 14-acre site. 21,000 sq. ft.

**Greenbrook Twp** — Electric Arc Inc.; pre-stressed heating equip. 10,000 sq. ft. (exist. bldg.).

**Hackensack** — Accurate Specialties Inc.; semi-conductors, perforated disks, washers. In oper. 15,000 sq. ft.

**Hamburg** — Plastod Corp.; insulated wire. Plans announced. 53,800 sq. ft.

**Keyport** — Hydrocarbons Chemicals Inc.; plastic prod'ts. In oper. 20,000 sq. ft. (exist. bldg.).

**Long Branch** — Electronic Measurements Co.; heat electronic components. In oper. 16,500 sq. ft.

**Mountainside** — Haloid Xerox Inc., 271 Sheffield St.; ofc. copiers whse. & sls. Oper. date: July 1961. 16,000 sq. ft.

**New Providence** — Micro-State Electronics Corp.; electronic components. Under constr. 12,600 sq. ft.

**Orange** — Techni Electronics Inc.; electronic equip. 21,000 sq. ft. (exist. bldg.).

**Parsippany-Troy Hills** — Texas — U.S. Chemical Co., Littleton Rd.; res. cntr. Under constr. 25-acre site. 53,000 sq. ft.

**Rockaway** — Swan Mfg. Co.; swimming pools. In oper. 16,000 sq. ft. (lease).

**Springfield** — Union Plastic Mfg. Inc.; vinyl plastic prod'ts. coating, finishing etc. In oper. 17,500 sq. ft. (exist. bldg.).

**Toms River** — Toms River-Cincinnati Corp.; dyes & plastics. In oper. 32,000 sq. ft.

### NEW MEXICO

**Clovis** — Curry Cnty. Grain Elevator Co., J. C. Hacker, Mgr.; elevator & whse. Under constr. \$225,000.

**Milnesand** — Nearburg & Ingram; gas. Plans working. \$1.5 million.

### NEW YORK

**Armonk** — International Business Machines, Data Systems Div. & Gen. Prod'ts. Div.; Headquarters. Plans announced. 250,000 sq. ft.

**Bethpage** — Grumman Aircraft Engineering Corp.; aircraft. Plans announced. 4,500 sq. ft. \$104,000.

**Bohemia, L. I.** — Dayton T. Brown, Inc.; testing lab. In oper. 26,000 sq. ft.

**Bronx** — George Fara & Co., 2242 Bathgate Ave.; women's apparel contractor. In oper. 2,400 sq. ft. (B).

**Brooklyn** — Artistic Packaging Co., Bush Terminal 33-24 Sts.; valentine boxes. In oper. 12,000 sq. ft. (existing bldg.).

**Brooklyn** — I & S Sport Togs, Inc., 396-408 Thatford Ave.; women's sportswear. In oper. 10,000 sq. ft.

**Brooklyn** — Packaging Equipment Co., 528 Bergen St.; mach'y. rebuilding. In oper. 15,000 sq. ft. (exist. bldg.).

**Brooklyn** — Piel Bros., 315 Liberty St.; beer. Oper. date: Apr. 1962. 20,000 sq. ft. \$715,000 bldg. \$960,000 equip.

**Brooklyn** — Success Chemical Co., Inc., 800 Hinsdale St.; pharmaceuticals. Oper. date: July 1961. 10,000 sq. ft.

**Canandaigua** — General Foods Corp., Birds Eye Div.; frozen instant baby food. Oper. date: 1962. 180,000 sq. ft. \$Multi-million. (C).

**Farmingdale** — Lavan Marine Corp., Lavan Coating Products Inc. Div.; plastics. In oper. 10,000 sq. ft. (exist. bldg.). \$50,000 equip. (A).

**Fishkill** — Seaboard Homes; prefab. homes. Plans announced. 30,000 sq. ft.

**Garden City** — Balco Products; aluminum doors & windows. In oper. 30,000 sq. ft.

**Hudson** — Hudson Acetylene Mfg. Co. Inc.; acetylene. Plans announced. 11-acre site. (D).

**Long Island City** — First Spice Mixing Co. Inc.; seasonings & specialty products. In oper. 30,000 sq. ft.

**Long Island City** — Scalandre Silks, Inc.; fabrics. Oper. date: Fall 1961. 10,000 sq. ft.

**Maspeth** — Berger Machine Products Inc.; lamp & electrical fittings. Oper. date: late 1961. 70,000 sq. ft. \$500,000.

**Middleport** — Food Machinery & Chemical Corp., Niagara Chemical Div.; research center. Plans announced. 16,000 sq. ft. \$1 million.

**New Hyde Park** — National Metal Slitting Corp. Plans announced. 10,000 sq. ft. (exist. bldg.).

**New York City** — Excelled Sheepskin & Leather Coat Co., 890 Broadway; coats. In oper. 11,000 sq. ft.

**New York City** — Il Progresso Italo-Americano Publishing Co. Inc.; newspaper publ. Oper. date: June 1961. 48,000 sq. ft. (exist. bldg.).

**New York City** — Sperry Rand Corp., Remington Rand Div.; exec. ofcs. Oper. date: May 1962. 400,000 sq. ft.

**North Tonawanda, Niagara Industrial Park** — Jet Air Heater & Cooler Corp.; auto & ofc. air-conditioners. Plans announced. 10,000 sq. ft.

**Oakdale** — Valley Crafts Inc., Valley Design Div. In oper. 15,000 sq. ft. \$100,000.

**Orangetown-Rockland** — Schwarz Laboratories, Inc.; biochemicals, radio chemicals, pharmaceuticals. Plans announced. 30,000 sq. ft. (B).

**Plainview** — American Casting & Mfg. Co.; seals, lead castings & stampings. Oper. date: Summer 1961. 20,000 sq. ft. (B).

**Plainview** — Guidance Controls Corp.; electronic products. Oper. date: June 1961. 12,000 sq. ft.

**Plainview** — Metropolitan Telecommunications Corp., Coil Winders Inc. Div.; electronic assemblies. In oper. 25,000 sq. ft. (exist. bldg.).

**Pleasantville** — Helen Whiting; dresses. \$350,000.

**Port Jervis** — Empire Tube Corp.; TV picture tubes. In oper. 42,000 sq. ft. \$4 million. (C).

**Port Jervis** — Kolmar Laboratories; fill & pkg. nail polish. In oper. (exist. bldg.). (B).

**Poughkeepsie** — International Business Machines; lab. prod't. dev. 155,000 sq. ft.

**Poughkeepsie** — Lumb Woodworking Co. Inc. Plans announced. \$400,000.

**Rochester** — Gillette Machine Tool Co.; machine tools. Plans announced. 10,000 sq. ft. \$100,000.

**South Ozone Park, Queens** — Circle Sportswear Co., 114-25 Lefferts Blvd.; women's apparel contractor. In oper. 10,000 sq. ft. (exist. bldg.). (A).

**Staten Island** — Western Electric Co. Inc. (Nassau Smelting & Refining Co. Inc.); non-ferrous metals — mfg., ofc., whse. Oper. date: Dec. 1962. 51,000 sq. ft. \$1.5 million bldg., \$100,000 equip.

**Syosset** — Astrosonics Inc.; ultrasonic equip. In oper. 23,000 sq. ft.

**Tupper Lake** — Helen Whiting Inc. (North Country Mfg. Corp.); dresses. In oper. 15,000 sq. ft. \$100,000 bldg., \$25,000 equip. (B).

**Westbury** — Dorne & Margolin Inc.; electronic instruments. In oper. 25,000 sq. ft. (C).

**Westbury** — Nathin Lagin Co. Inc.; lamp assembly. In oper. 30,000 sq. ft. (exist. bldg.). \$350,000. (B).

**Westchester** — Darby Food Corp. (Arrow Labs. Inc., Subs.), Westmoreland Ave.; toilet preparations. In oper. 25,000 sq. ft. (exist. bldg.).

**West Haverstraw** — Label Products Corp.; specialty printers. In oper. 35,000 sq. ft. (exist. bldg.). (A).

**West Islip** — Garsite Products Inc.; aircraft fueling equip. In oper. 25,000 sq. ft.

**Woodside, L.I.** — Mansfield Holiday Corp. of N.Y.; photo equip. Oper. date: June 1961. 10,800 sq. ft.

**Wurtsboro** — Shawangunk Minerals Co.; mine. In oper. \$600,000.

### NORTH CAROLINA

**Benson** — Benson Feed Mill Inc. (Purina Pkg. Mill); livestock feed. (B).

**Charlotte** — Carolina Machinery Corp. (Div. Curlator Corp.), John W. Ingle, Pres., 5019 Wilkinson Blvd.; textile mach'y. Plans announced. 10,000 sq. ft. \$100,000. (b).

**Charlotte** — Close & Murray Chocolate Co., Rob't L. Close, Pres., 610 Anderson Ave.; chocolate syrup, flavorings, coatings. In oper. 10,000 sq. ft. (B).

**Charlotte** — Interchemical Corp. Fred Weymouth, V. Pres.; ind'l. inks, finishes & dyes. Under constr. 15-acre site. 53,500 sq. ft.

**Cherryville** — Indian Creek Garment Co.; children's wear. (B).

**Coleridge** — Enterprise Mfg. Co.; cotton yarns. Plans working. 46,000 sq. ft. (C).

**Dunn** — Dunn Meat Packers Inc., John H. Waldock, Pres.; meat processing. (Rep'ted prev.; Eastern Packers at Smithfield). Oper. date: Oct. 1961. \$2.75 million. \$400,000 bldg. & site. (C).

## NEW PLANTS

**Farmville** — North State Garment Co., Tom Anderson, Pres.; garments. 10,000 sq. ft. (B).

**Henderson** — United States Mobile Trailer Homes, Guerdon Wolfe & Dale Miller, Offis.; trailer homes. Oper. date: early Summer 1961. 50,000 sq. ft. (B).

**High Point** — Manorcraff Inc.; uphols. lvngrm. furn. (B).

**High Point** — Star Mfg. Co.; uphols. lvngrm. furn. (B).

**Mayodan** — Pextiles Corp. of America; paper woven or knit mater. (B).

**Mt. Holly** — Kimberly Yarn Mills Inc.; cotton yarn. (C).

**Wrightsville Beach** — Saline Water Conversion Demonstration Plant & Marine Test Center. (B).

## NORTH DAKOTA

No Plants Reported.

## OHIO

**Akron** — Akron Coca-Cola Bottling Co., 111 N. High St.; soft drinks. In oper. \$500,000.

**Bedford Heights** — Anchor Fasteners Ind., Richmond & Miles Rd. Plans announced. 52,000 sq. ft. \$300,000.

**Bedford Heights** — Sheffield Steel Products, 5135 Richmond Rd.; sheet steel coil & light plates. In oper. 11,680 sq. ft. \$65,000.

**Bedford Heights** — Sprayon Products Inc., Fargo Ave.; aerosol cans. Oper. date: Jan. 1962. 85,000 sq. ft. \$750,000.

**Celina** — Mersman Bros. Corp., W. Wayne & Brandon Sts. Plans announced. 70,000 sq. ft.

**Cincinnati** — James F. Breen Co., 3914 Virginia Ave., Fairfax, Cincin.; Plans announced. 20,000 sq. ft. \$200,000.

**Cincinnati** — Coral Homes, 7685 Fields Ertel Rd., Evandale, Cincin.; pre-fab homes. In oper. 43,000 sq. ft. \$400,000. (C).

**Cincinnati** — National Billiard Mfg. Co., 3956 Virginia Ave., Fairfax, Cincin. 27; billiard equip. Under constr. 20,000 sq. ft. \$120,000. (A).

**Cleveland** — Wenham Inc., 2723 Orange Ave. Oper. date: end July 1961. 31,800 sq. ft. \$275,000.

**Conneaut** — Perfection Electronics Inc., W. Jackson St.; 2-wheel trailers & electronic parts. 15,000 sq. ft. (B).

**Dayton** — Duriron Co. Inc., 519 N. Findlay St.; chem.-plant equip. Oper. date: Fall 1961. 28,000 sq. ft. \$600,000. (B).

**Elmore** — Brush Beryllium; beryllium metal & alloys. Oper. date: July 1961. 70,000 sq. ft. \$7 million. (C).

**Elyria** — Mobilaid Inc., Oberlin Rd.; wheelchairs. In oper. 26,000 sq. ft. \$150,000.

**Findlay** — Dobeckman Co. (Div. Dow Chemical Co.), 3441 N. Main St.; polyethylene film prod'ts. In oper. \$25,000. (B).

**Lima** — Ohio Steel Foundry, P. O. Box F; rolling mill ind. equip. — iron, steel rolls. Oper. date: Dec. 1961. 186,000 sq. ft. \$1.5 million.

**Lima** — S & S Products Co., 999 W. Grand ; bottled beverage coolers. In oper. 11,600 sq. ft. \$34,000.

**Maple Heights** — N. L. Corporation, 14901 Broadway Ave.; lighting fixtures. In oper. 44,000 sq. ft. \$450,000. (C).

**Medina** — Plasti-Kote Inc.; aerosol spray paint. Oper. date: July 1961. 105,000 sq. ft. \$1 million. (C).

**Mentor** — Fluid Control Inc., Box 186; hydraulic valves & devices. Oper. date: July 1961. 5,500 sq. ft. \$130,000. (B).

**Middletown** — Armco Steel Corp., 703 Curtis St.; welded pipe & drainage prod'ts. Plans announced. 207,000 sq. ft. \$2.5 million.

**Niles** — Mahoning Valley Steel Co., McKees Land; tubular prod'ts. In oper. 18,000 sq. ft. \$750,000. (A).

**Ottawa** — Nelson Mfg. Co., N. Locust St. Plans announced. 28,000 sq. ft.

**Ravenna** — Berg Potato Chip Co., 537



## I. D. CALENDAR

### JANUARY

ID January Issue features Real Estate Brokers Reference Study.

### FEBRUARY

ID February Issue features Electric Utilities Reference Study.

### MARCH

ID March Issue features the Ports Reference Study and the American Industrial Development Council Reference Study.

### APRIL

ID April Issue features Industrial Parks Reference Study.

American Ind'l Dev't Council plans 1962 annual convention at Cleveland, Ohio.

### MAY

ID May Issue features the Blue Book of Southern Progress Reference Study and the Trucking Companies Reference Study.

### JUNE

ID June Issue features Gas Utilities Reference Study.

Engineering Economy Division of American Society for Engineering Education 1962 Annual Meeting planned at Colorado Springs, Colo.

### JULY

ID July Issue features New England Reference Study and Railroad Reference Study.

26th-28th: American Management Ass'n, "Planning—Forecasting & Planning in the Defense Industries" (Workshop No. 2125-81). Colgate University, Hamilton, N. Y. Reservations: AMA, Inc., 1515 Broadway, Times Square, New York 36, N. Y.

31st-Aug. 2nd: AMA, "Forecasting—Advance Business Forecasting" (Workshop No. 2131-92). AMA Academy, Saranac Lake, N. Y. Reservations as above.

31st-Aug. 4th: AMA, "Planning—Advanced Long-Range Planning Workshop" (Workshop No. 2102-95). AMA Academy, Saranac Lake, N. Y. Reservations as above.

31st-Aug. 4th: AMA, "Facility Engineering—Organization & Management of the Facility Engineering Function" (Workshop No. 4183-81). Colgate University, Hamilton, N. Y. Reservations as above.

### AUGUST

ID August Issue features Canadian Reference Study and State Agencies Reference Study.

21st-25th: AMA, "Total Planning—Planning to Meet Corporate Growth" (Orientation No. 2226-92). AMA Academy, Saranac Lake, N. Y. Reservations as above.

Utah plans an Economic Development Conference at Salt Lake City. Contact: W. C. Palfreyman, Director, Utah Comte. of Ind'l & Employ't Planning, 174 Social Hall Ave., Salt Lake City.

### SEPTEMBER

ID September Issue features Financial Institutions Reference Study.

11th-15th: AMA, "Real Estate—Fundamentals of Corporate Real Estate Management" (Orientation No. 2228-91). AMA Academy, Saranac Lake, N. Y. Reservations as above.

18th-20th: AMA, "Corporate Planning" (Workshop No. 2113-06). LaSalle Hotel, Chicago. Reservations as above.

18th-22nd: International Bank for Reconstruction and Development, International Monetary Fund, International Finance Corporation, International Development Association: Annual Meetings of Boards of Governors. Vienna, Austria. Contact: Office of International Conferences, Department of State, Washington 25, D. C.

11th-16th: The International Industrial Conference, sponsored by Stanford Research Institute & National Industrial Conference Board, convenes in San Francisco for five days.

Virginia and the Idaho-Eastern Oregon Industrial Development Council plan Autumn development conferences. Watch future issues for further details.

### OCTOBER

ID October Issue features the Annual Site Selection Handbook.

2nd-4th: Canadian Chamber of Commerce Annual Conference, Halifax, Nova Scotia.

5th-6th: Minnesota's I.D. Conference, Rochester, Minn.

9th-11th: AMA, "Planning—Forecasting & Planning in the Defense Industries" (Workshop No. 2125-05). Hotel Astor, New York City. Reservations as above.

23rd-24th: Missouri I.D. Conference, Governor Hotel, Jefferson City, Mo.

29th-31st: Southern Industrial Development Council Conference, Tampa Terrace Hotel, Tampa, Florida.

### NOVEMBER

ID November Issue features Air Transport Reference Study.

Tennessee plans ID Conference. Watch future issues for further details.

Society of Industrial Realtors plans Fall Convention at Miami, Fla.

### DECEMBER

ID December Issue features the Gulf-Caribbean Area Reference Study.

5th-7th: Building Research Institute Fall Conference (Div. of Engineering & Industrial Research). Shoreham Hotel, Washington, D. C. Contact above organization at 2101 Constitution Ave., Washington 25, D. C.



## NEW PLANTS

Oakwood St. & Erie R. R.: snack foods. Plans announced. 12,000 sq. ft.

**Sebring** — United Die & Mfg. Co., S. 17 St.; aluminum parts. 18,000 sq. ft. \$25,000.

**Toledo** — Conforming Matrix Corp., 830 New York Ave.; tools, mach'y. spray decorating. In oper. 22,500 sq. ft. \$36,600. (A).

**Toledo** — Hillebrand Electronics, 4665 W. Bancroft St. Plans announced. \$100,000.

**Warrens Heights** — Metalphoto Corp., S. Miles Rd.; aluminum name plates, signs, etc. Oper. date: Aug. 1961. 9,000 sq. ft. \$120,000.

**Washington Crt. Hse.** — Armco Drainage & Metal Products Inc., P. O. Box 151; steel bldgs. Oper. date: mid-1961. 70,000 sq. ft. \$700,000.

## OKLAHOMA

**Ada** — Nor-Tex Carpet Mills Inc., L. B. Pointer, Pres.; tufted carpets. Plans announced. 50,000 sq. ft. (C).

**Tulsa** — Sinclair Research Inc. (Subs. Sinclair Oil & Gas Co.); res. lab. Plans working. (D).

## OREGON

**Dallas** — Allamette Valley Lumber Co., M. J. Kelly, Prod. Mgr.; plywood sheathing mill. Under constr. 12,000 sq. ft. (B).

**Gardiner** — International Paper Co.; pulp & paper mill. Plans working. \$30 million.

**McMinnville** — Northwest Fabric Inc.; textiles. Plans announced. 65,000 sq. ft. \$500,000. (B).

**Milwaukie** — Dad's Root Beer Bottling Co.; bottling. Under constr. 25,000 sq. ft. \$250,000.

**Portland** — Zellerbach Paper Co., V. E. McIntrye, Div. Mgr., N. E. 92nd Dr.; admin. hq., whse. Oper. date: Dec. 1961. 176-acre site. 200,000 sq. ft. \$1.5 million.

**Tigard** — Fought & Co. Inc.; steel. Plans announced. 121,800 sq. ft. \$310,000. (B).

**Tigard, Cascade Ind'l. Park** — National Appliance Co.; scientific apparatus & lab. equip. Oper. date: Sept. 1961. 30,000 sq. ft. (B).

## PENNSYLVANIA

**Butler** — International Staple & Machinery Co.; stapling equip. & mach'y. Plans announced. 10-acre site. 107,500 sq. ft. (D).

**Chester** — Reynolds Metals Co., Richard S. Reynolds Jr., Pres.; insulated wire & cable prod'ts. Plans announced. 650,000 sq. ft. (exist. bldg.). \$2.2 million.

**Erie** — Erie Sand & Gravel Co.; marine construction storage. In oper. 120,000 sq. ft. \$750,000. (B).

**Norristown** — Container Corp., Gar-mould Div.; injection moulded plastic. In oper. 15,000 sq. ft. \$170,000. (A).

**Philadelphia** — Crown Products Corp.; carpet padding. Plans announced. 175,000 sq. ft. \$650,000.

**Philadelphia** — Marquetands' Candies; candy. Plans announced. 50,000 sq. ft. (B).

**Philadelphia** — James H. Matthews & Co., Chas. Koff, Mgr., 3780 Main St., Manayunk; ind'l. marking devices. In oper. (reloc.). 12,000 sq. ft. \$230,000. (B).

**Quarryville** — Universal Trailer Corp.; truck-trailers. Plans announced. 13,800 sq. ft. (B).

**Reading** — George D. Barbey Co. Inc.; electronic parts & equip. In oper. 40,000 sq. ft. \$150,000. (B).

**Sellingsgrove** — Princess Homes Inc.; mobile homes. Plans announced. 24,000 sq. ft. \$130,000. (B).

**York** — Packless Metal Hose Inc.; flexible metal hose. In oper. 16,000 sq. ft. \$175,000. (B).

**York** — U. S. Bolt Co.; bolts, drills, tools. Plans announced. 15,730 sq. ft. \$80,000. (B).

**York** — Graham Engineering Co., 343-349 W. Princess St.; aluminum storm windows & doors. (exist. bldg.) (B).

## PUERTO RICO

**Bayamon** — Liquid Air Inc., Jaime S. Carrion; liquid oxygen & nitrogen. In oper. 8,000 sq. ft. \$250,000. (A).

**Caguas** — Electro Industries Inc., Agustín Rivero, Mgr.; fractional hp. elec. motors. In oper. 4,500 sq. ft. \$20,000. (B).

**Ciales** — Bayuk International Inc., Bernard Seltzer, Mgr.; wrapper leaf tobacco sorting. Oper. date: Dec. 1961. 22,684 sq. ft. \$40,000. (C).

**Gurabo** — Billfold Corp. of America, S. E. Knee, Offl.; billfolds. Plans announced. 16,000 sq. ft. \$50,000. (C).

**Hato Rey** — Specialty Electronics Dev't. Corp. of P. R., Herman Sondov, Chm.; military electronics & communication equip. In oper. 11,000 sq. ft. \$50,000. (C).

**Rio Grande** — V. & D. Machine Embroidery of P. R. Inc., Joseph Valence, Pres.; women's apparel embroidery. Oper. date: July 1961. 8,100 sq. ft. \$15,000. (B).

**Rio Piedras** — Euphonics Acoustics Corp., A. M. Wiggins, V. Pres.; aluminum microphones, loudspeakers. In oper. 2,000 sq. ft. \$18,000. (B).

**Trujillo Alto** — Roy Bell, Roy Bell, Offl.; biscuits, cookies. Plans announced. 33,828 sq. ft. \$90,000. (A).

## RHODE ISLAND

**Burrillville** — Algonquin Gas Transmission Co.; compressor station: natural gas distr. Oper. date: late 1961. 105-acre site. \$2 million plus.

## SOUTH CAROLINA

**Cayce** — Owen Electric Steel Co.; steel billets & roller mill. Oper. date: Aug. 1961. \$1.5 million. (C).

**Greenville** — Chemstrand; data proc. cntr. Oper. date: early 1962. 4.5-acre site. (B).

**Greenville** — White Horse Mill #2; cotton fabric. Oper. date: late 1961. \$4 million. (C).

**Spartanburg** — Southern-Leigh Textiles; waste processing. Oper. date: July 1961. 50,000 sq. ft. (B).

## SOUTH DAKOTA

No Plants Reported.

## TENNESSEE

**Clarksville** — Dura-Crates Inc., E. B. Hibbs, Pres.; corrugated cartons. Oper. date: Sept. 1961. 25,000 sq. ft. (B).

**Crossville** — General Processing Corp., Joe L. Wibel, Pres.; water heaters. LP gas equip., etc. Plans announced. 60,000 sq. ft. \$350,000 equip. (B).

**Goodlettsville** — Anchor Wire Corp., Gordon Rappuhn, Pres.; electric fence wire, etc. Oper. date: June 1961. 15,200 sq. ft. (B).

**Humboldt** — Century Electric Co. (Hermetic Div.) Fred H. Pillsbury, Pres., M. L. Whitney, Plnt. Mgr., Trenton Hwy.; hermetic motors. Under constr. 60,000 sq. ft. (C).

**Jefferson City** — Tri-State Zinc Inc. (owned by subs. of Consolidated Gold Fields of South Africa Ltd., London) and American Zinc Co. (Subs. American Zinc, Lead & Smelting Co., R. A. Young, V. Pres.); zinc ore processing mill. Plans working. \$4 million.

**Nashville, Sidco Ind. Dist.** — General Equipment Exchange; tire retread matrix. Constr. date: Aug. 1961. 20,000 sq. ft. \$250,000. (B).

**New Canton** — Kingsport Press Inc., Walter F. Smith, Brd. Chm.; books. Oper. date: late 1963. 170-acre site. 200,000 sq. ft. \$6 million. (D).

**Oak Ridge** — United States Nuclear Corp., Jas. H. Wilde, Pres.; isotope processing. Plans announced. 6-acre site. 7,800 sq. ft. \$250,000 (total invest.: new firm). (A).

**Pulaski** — Consolidated Paper Co., Tenn. Valley Div.; corrugated containers. Oper. date: Nov. 1961. 40,000 sq. ft. (B).

**Smithville** — Taylor Wood Preserving Co.; wood prod. preserving. Plans announced. 40-acre site. (B).

**Waynesboro, Wayne Cnty. Ind. Park** — Hy-Grade Rainwear Mfg. Co., Jos. Kestenbaum, Exec. V. Pres.; rainwear. Constr. date: June 1961. 5-acre site. 39,000 sq. ft. \$800,000. (C).

## TEXAS

**Atlanta (Bryans Mill)** — Shell Oil Co., Jas. E. Wilson, V. Pres.; gas sep. Plans announced. \$2 million.

**Dallas** — Direct Mattress Co. Inc. (Subs. Sanitary Mattress Co.) Hyme Schnitzer, Pres.; mattresses. Plans Announced. 25,000 sq. ft.

**El Paso** — American Minerals Co., Rob't. James, Mgr.; manganese ore proc. In oper. \$250,000.

**Ft. Worth** — Aztec Mfg. Co., Floyd Hubert, Pres., 2901 W. Pafford; plastic-coated pipe interiors. Under constr. \$100,000.

**Ft. Worth** — Crown Cork & Seal Co. Inc., John F. Connelly, Pres.; containers, food & bev. ind'y. mach'y. Plans announced. \$3.5 million. (D).

**Ft. Worth** — Southwestern Container Corp., Marvin Sheldon, Pres., 1813 W. Bowie; shipping containers. In oper. 15,000 sq. ft.

**Ft. Worth** — Tandy Leather Co., Div. Tandy Corp., J. L. West, Pres., 800-1000 Foch St.; leather goods. Oper. date: July 1961. 125,000 sq. ft. (move). (D).

**Ft. Worth** — Volt Technical Corp., Wm. J. Synal, Mgr., 5255 River Oaks Blvd.; technical publications. In oper. (B).

**Houston** — Bemis Bros. Bag Co., G. M. Robb, Mgr., Box 1228; paper, textile, open-mesh bags. Oper. date: late 1961. 18-acre site. 200,000 sq. ft. \$1.4 million.

**Houston** — Bowen Ito Inc., Fred N. Osmun, Pres., Box 4587; drilling tools. In oper. \$4 million (3 bldgs.) (D).

**Houston** — Benjamin Foster Co., G. F. Freeway, Ind'l. Dist.; ind'l. adhesives, thermal insulation coatings. Oper. date: June 1961. 11,000 sq. ft. \$200,000.

**Houston** — National Supply Co. (Subs. Armo Steel Corp.), G. S. Leonard, Wrks. Mgr., 6229 Navigation Blvd.; oil ind'y. drill equip. Oper. date: late 1961. 2 plnts., 1 whse. (B).

**Houston** — Seven-Up Bottling Co., R. L. Wilson, Br. Mgr., Alice St.; bottling. Under constr. \$1 million.

**Houston** — Uncle Ben's (Subs. Food Mfrs. Inc.), Leonard Childs, Co. Att'y., Westheimer at Eldridge; food pkg. Plans announced. 98-acre site. \$12 million.

**Orange** — NGL Corp.; gas condensate, natural gas. Plans working. \$9.5 million.

**Paris** — Campbell Soup Co., W. B. Murphy, Pres.; food proc. Oper. date: late 1963. 684-acre site. 1 million sq. ft. \$Multi-million. (D).

**Plano** — Home Metal Products Co., J. E. Stalker, Pres., Hwy. 75; kitchen range hoods. Oper. date: Spring 1963. 8.6-acre site. 75,000 sq. ft. (move).

**Tyler** — Mason-Tyler Mfg. Inc.; upholstered furn. In oper. (B).

## UTAH

No Plants Reported.

## VERMONT

**Burlington, Burlington Ind'l. Prk.** — General Electric Co. Missile Production Center, C. H. Ridgely, Mgr., Cynosure Bldg. #2, Home Ave.; Mark 6 re-entry vehicle. Oper. Date: Dec. 1961. 7-acre site. 24,100 sq. ft. (Exist. bldg.). 7,200 sq. ft. (under constr.). (C).

## VIRGINIA

**Collinsville** — Reynolds Container Co.; corrugated boxes. In oper. (B).

**Davis Corner, Princess Anne Cnty.** — Precision Heat Exchanger Co., Inc., Hugh Eure Jr., Pres.; heat exchangers. Oper.



date: Aug. 1961. 3-acre site. 10,000 sq. ft. \$125,000.

**Emporia** — Bel Aire Products Inc.; aluminum boats. Plans announced. (B).

**Falls Church** — Scope Inc.; electronic components. In oper. (B).

**Gordonsville** — Gordonsville Industries Inc.; lace. Oper. date: July 1961. \$100,000 plus. (B).

**Lawrenceville** — Pretty Maid Dress Co.; children's wear. In oper. (B).

**Lunenburg** — Walker-Clark Co.; wood products. In oper. (B).

**Portsmouth** — Oxo Chemical Co.; chem. proc. Under constr. 586-acre site. \$10 million.

**Ruckersville** — Henry C. Miller Garment Co.; apparel. In oper. (B).

**Wytheville** — Narrow Fabric Co., Wytheville Div.; narrow elastic & trimmings. In oper. (B).

## WASHINGTON

**Lynwood** — Westernaire Corp., 5611 208 St. S. W., A. W. Turner, Owner; aluminum sash & doors. Plans announced. 12,000 sq. ft. (B).

**Pasco, Port of Pasco Ind. Park** — Huico (Div. Hoffman Constr. Co., Univ. Pibg. & Heating & Ind. Contracting Co.); pipe. In oper. (C).

**Seattle** — Allied Sheet Metal Works, 1407 W. 52nd St.; sheet metal mfg. & ofc. Plans announced. 18,800 sq. ft. \$80,000.

**Seattle** — MEG Mfg. Co. (Div. Mandrel Ind. Inc.) In oper. (move). 16,000 sq. ft. (C).

**Seattle, Stimson Ind. Park** — Minneapolis-Honeywell, W. 53rd & Shilshole Ave.; mfg., ofc. & res. Plans announced. 50,000 sq. ft.

**Tukwila, Andover Ind. Park** — Abbott Laboratories; whse. & ofc. Plans announced. 3.2-acre site. 26,000 sq. ft.

**Tukwila, Andover Ind. Park** — General Electric Co.; ofc. & whse. Plans announced. 30,000 sq. ft. ofc., 90,000 sq. ft. whse.

**Union Gap** — Northwest Hides Co. Inc.; hide curing. Plans announced. \$100,000.

## WEST VIRGINIA

**South Charleston** — Food Machinery & Chemical Corp.; chemicals. Plans announced. 197-acre site. \$4.3 million (site & exist. bldgs.). \$Multi-million plant constr., oper. date: early 1962.

## WISCONSIN

No Plants Reported.

## WYOMING

No Plants Reported.

## CANADA

### ALBERTA

### BRITISH COLUMBIA

No Plants Reported.

### MANITOBA

**Altona** — Aetna Garments Co. Ltd., S. Posochin, Pres.; work clothing. Oper. date: Aug. 1961. 13,000 sq. ft. \$60,000. (B).

**St. Boniface** — Custom Abattoir Ltd.; meat prod'ts. Oper. date: June 1961. 20,000 sq. ft. \$775,000. (B).

### NEW BRUNSWICK

### NEWFOUNDLAND

### NOVA SCOTIA

No Plants Reported.

### ONTARIO

**North York** — Beverage Canners Ltd., W. R. Ballard, Pres., Fenmar Dr.; beverage custom pkg. Under constr. 10-acre site. 50,750 sq. ft.

**Smith Falls** — Hershey Chocolate Co.; chocolates. Under constr. \$7 million.

**Toronto** — C C H Canadian Ltd. (Subs. Commerce Clearing House Inc.), Garamound Dr.; legal print & publ. Plans announced. 5-acre site. 42,000 sq. ft.

**Toronto** — Collins Radio Co. of Canada Ltd., 150 Bartley Dr.; communications equip. In oper. 5-acre site. 56,000 sq. ft.

**Toronto** — Cutler-Hammer Canada Ltd. (Subs. Cutler-Hammer Internat'l., C. A.), C. W. Findlow, Pres., Progress Ave. & Kennedy Rd.; motor control & apparatus. Under constr. 10.5-acre site. 53,300 sq. ft. \$500,000 (Bldg. & site). (B).

**Toronto** — Dominion Tar & Chemical Co. Ltd., 801 Lakeshore Blvd. E.; phthalic anhydride. Oper. date: late 1961. \$3.5 million.

**Toronto** — North America Arms Corp. Ltd., Maj. Gen. Chris Vokes, Pres., 1840 Birchmount Rd.; sporting arms. 27,000 sq. ft. (reloc.)

**Toronto** — Paper Novelty Mfg. Co. Ltd. (Subs. Paper Novelty Mfg. Co.), 306 Front St. W.; decorations, valentines. In oper. 40,000 sq. ft. (reloc.)

## PRINCE EDWARD ISLAND

No Plants Reported.

## QUEBEC

**Lachine, Montreal** — Crown Zellerbach Canada Ltd., R. G. Robers, V. Pres.; sls. ofc. & whse. Constr. plans working. \$350,000.

**St. Laurent, Montreal** — McFarlane Son & Hodgson Ltd., Deslauriers St.; stationery. Constr. plans working. \$450,000.

## SASKATCHEWAN

**Moosejaw** — Armour Agricultural Chemical Co. & Pittsburgh Plate Glass Co.; muriate of potash pilot plant. Plans announced. \$Multi-million.

**Regina** — Solarpane Mfg. Co. Ltd., G. M. Forbes, Pres.; sealed glass window units. In oper. 12,000 sq. ft. \$190,000. (B).

**Regina** — Zol-Mark (Canada) Ltd., B. Kurtz, Offl.; electro-plating & metal finishing. In oper. \$115,000. (A).

**Saskatoon** — Dominion Bridge Co. Ltd., B. H. Lacey, Br. Mgr.; reinforcing steel prod'ts. mfg. & whse. In oper. \$250,000 (equip., site, etc.) (A).

## INTERNATIONAL

**Argentina (San Lorenzo)** — Yacimientos Petroliferos Fiscales, by Hydrocarbon Research Inc. (P. C. Keith, Pres.) & Minera Alumina; high-octane gas & benzene. Plans announced. \$15 million.

**Argentina** — United Machinery Works; diesel engines. Plans working. \$260,000.

**Australia (Tasmania)** — Australian Paper Mfrs. Ltd.; paper mill. \$3 million.

**Australia (Kwinana)** — British Petroleum; lubricating oil. \$20.3 million.

**Australia (Kurnell)** — Caltex, Ampol & H. C. Sleight; lubricating oil. \$27 million.

**Australia (Geelong, Victoria)** — International Harvester Co. of Australia; res. & dev. Oper. date: Aug. 1961. 10-acre site. \$784,000.

**Australia (Geelong, Victoria)** — Shell Co. Ltd.; lubricating oil. Constr. date: 1962. Oper. date: 1964. \$13.44 million.

**Belgium (Genk, Kempenland)** — Blue Bell Inc. & Ameral Co.; apparel (work, sports). Oper. date: Sept. 1961 (C).

**Burma** — Burma Teak & Plywood Trading Co. (Subs. Defense Service Institute); plywood. Plans working. \$500,000.

**Colombia (Barranquilla)** — General Electric Co.; light bulbs (elec. & fluor.) Plans announced. \$5 million.

**England (Southampton, Hampshire)** — Esso Petroleum Co. Ltd., Fawley Refinery;

**Venezuela** — Aluminio del Caroni S.A. (Reynolds Metals, 50% onrship.); alumina reduction. Constr. date: 1961. \$25 million.

butyl rubber (Eng.'s 1st.)

**Ethiopia (Massawa Port)** — INCODE; cold storage, meat, fish. Plans announced. \$200,000.

**Finland** — Pietarsaari; sulphate & kraft-paper. Plans working. \$25 million.

**France (Lyons)** — American Potash & Chemical Corp. and Ugine; chemicals. \$2 million.

**Germany (Brunsbüttelkoog)** — Continental Oil Co. & Deutsche Erdöl AG (180 Mittelweg, Hamburg 36); alcohol for detergent & plasticizer ind'y. Plans announced. \$15 million.

**India (Dhuwaran, Gujarat)** — Gujarat State Electricity Bd.; thermal power station. \$52.5 million.

**India (Visakhapatnam)** — International Minerals & Chemicals Co., California Chemical Co., and Parry & Co.; nitrogenous fertilizer. Plans announced. \$51 million.

**Indonesia (S. Sumatra)** — Von Kohorn International Corp.; rayon. Plans announced. \$65 million.

**Japan** — Takano Seimitsu Kogyo K. K.; watches. Plans announced. \$694,000 (2 plants).

**Israel (Sodom)** — Dead Sea Works Ltd.; Magnesium oxide, hydrochloric acid pilot plant. Plans announced. \$225,000.

**Mexico (Minatitlan)** — Cementos del Sur, S. A.; cement. Under constr. \$5.6 million.

**Netherlands (Heerenveen)** — Tektronix Inc.; electronic precision instruments. Plans announced. 23-acre site. \$600,000.

**Rhodesia & Nyasaland, Fed. of** — Aluminum Industrie Aktiengesellschaft; aluminum smelting complex. Plans working. \$168 million.

**Sudan** — Arabian Paper Mfg. Co.; paper, cardboard. Constr. Date: early 1961. \$15 million.

# SOUTHWEST FLORIDA CALLING...

If you have a product you manufacture, or expect to manufacture, or if you fabricate, assemble, or process a product which you believe could be manufactured, fabricated, processed, or assembled profitably in the Naples, Florida, area, this message is for you.

To any one with an acceptable product — or with plans for developing one — we will consider providing a suitable site at little or no cost and will assist in financing and management if desired. Write us, giving a general outline of your business or a business you would like to develop in this most interesting and fast-growing area on the Gulf of Mexico. All replies strictly confidential. Address P. O. Box 1246, ID, Naples, Fla.

## DIRECTED BY

Richard Edmonds 1882-1930

Frank Gould 1930-1943

William Beury 1943-1955

McKinley Conway 1956

## MANUFACTURERS RECORD

(IN REVIEW)



"What Enriches Any  
Region Enriches The  
Nation"

JUNE, 1887

(AS ABSTRACTED MORE THAN 70 YEARS LATER)

BALTIMORE, MD.

FOREIGN TRADE IN  
AMERICAN STAVES

The Department of State has issued a special consular report on the American stave trade abroad. Few people are aware of the extent to which this has grown, nor is it generally known that some of the European wines imported here are in casks made from wood grown in this country. These reports show that nearly \$2 million worth of American staves were purchased abroad during 1890, and while this represents only a fraction of the total number of staves used, the trade is increasing wherever introduced, and its larger growth only depends upon the exertion made to push it. The greater part of these staves were made in the Southern states and shipped from Southern ports, a small portion only coming from Michigan and other Northern States.

The American staves are greatly preferred for their superior density and elasticity. In France the brandymakers say that the American oak injures the flavor of their product, and in some German cities the beer-makers say that it colors the beer, but apart from these it appears to have met with marked favor in almost all places. Two suggestions are made by nearly all the consuls, and are worth attending to. It appears that American shippers of staves do not pay attention to the shape and kind of stave required in various places, and that this be done is strongly urged. Stave timber here is split so that a cross section has a wedge shape, and this is seriously objected to as making unnecessary waste in cutting staves. Another thing is that continental buyers prefer examining and selecting the staves before purchasing, and as there are no storehouses where they can do this with American staves, they do not buy as readily or as willingly as otherwise. The consuls recommend, therefore, that Americans secure a warehouse at some large port and then send a traveling man through Europe to work up a trade just as they do at home.

The almost unanimous opinion of these consuls is that by properly attending to this trade it can be greatly enlarged. In some few places there is a duty on the staves which is practically prohibitive, but in the majority of cases the duty is light. The consul in Chemnitz states that stave timber from America would, if carefully cut, find an immediate sale in Germany as soon as it was known to be on the market. From Cologne the consul writes that oak timber is growing more and more scarce in Germany, and American staves can now easily compete with the German

staves or others imported there. During 1890 Germany imported 7,926 tons of staves, of which 350 tons came from America, and the latter is so much preferred that one large manufacturer in Frankfort-on-the-Main has given an order to a St. Louis firm, who will ship by rail to Boston and thence by steamer to Rotterdam, where the consignee will receive it.

From Catania, Italy, the consul writes that there are annually exported 4 million boxes of oranges and lemons, and the wood for the boxes has all to be imported. This is a suggestion worth acting on, as he further states that a large proportion of the fruit comes to the United States and the vessels frequently return without a full cargo.

There is an opportunity here to develop a large trade . . .

## A FOOLISH ARGUMENT

Mr. Henry M. Stanley, who has now become an English subject, has, it seems, been running for election to a seat in the English Parliament on the Tory side, and amongst other foolish things has been advancing some remarkably thin arguments against the 8 hour movement over there. As we understand the matter, an attempt is being made to enforce

an 8 hour day over there by legislation, which, we believe, is unwise; but such arguments as Stanley has been advancing will never make anyone see the un wisdom of it. He is reported to have said before an audience of working people that he "never would have accomplished what he has done in Africa if he had confined himself to eight hours labor per day." This form of argument is old, and entirely without applicability to the case.

Most great and famous men have been endowed with the power to work long hours. Stanley by doing this upon occasion has made himself famous, has become wealthy, married a wealthy woman, and can now, as indeed he has done in the past, give himself long vacations and complete rest, during which he need not worry about where his bread and butter is to come from. Because he has worked long hours in accomplishing this, does it follow that men whose lot it is to work in English factories and coal mines at monotonous, unvarying and hard, physical labor, not made lighter by hopes of any such reward, shall make no effort to shorten their hours of labor and secure for themselves leisure to enjoy some of the good things provided for the inhabitants of this world? . . .

SILVER & DEMING MFG CO.  
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**PUMPS**  
+ FOR +  
POWER HAND & WINDMILL USE.  
ARTESIAN WELL PUMPS & CYLINDERS A SPECIALTY  
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## SELECTED HARD-WOOD WHEELBARROW. Strictly Bolted.

THE CHAMPION, bent legs and bent braces, Dump Wheelbarrow, has met with the largest sale and the most general favor everywhere of any Wheelbarrow that was ever made, as it is, in fact, the most perfect in construction, being a system of braces bolted together in such a manner that every part braces and protects every other part, and made from the best timber that grows. The handles, legs and braces, are made of oak, ash and hickory. Sold with wood wheel, iron centre, wood wheel or iron wheel.

—BRYAN MFG. CO., Bryan, Ohio.—

# ARIZONA



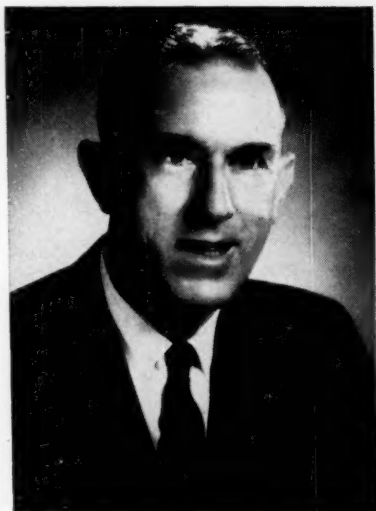
A REFERENCE STUDY BY



THE INTERNATIONAL GUIDE TO INDUSTRIAL PLANNING AND EXPANSION  
CONWAY PUBLICATIONS, INC • 2592 APPLE VALLEY RD. • ATLANTA 19, GA.

After a slow start, the Grand Canyon State has lately been coming into her own like Cinderella. The 1960 Census showed the State's population up to 1.3 million from 750,000, while Phoenix and Tucson both more than quadrupled in size — from 107,000 to 439,000 and from 46,000 to 213,000, respectively. In most other parts of the state, the growth has been almost as rapid. How come?

# ARIZONA: A CENTURY OF



Governor Paul Fannin, now in his second term, is a strong believer in the power of private enterprise to build Arizona into a major industrial state. He has selected 40 prominent business men with nationwide interests as a Governor's Committee for Industrial Arizona to spread the word about the opportunities in the state.



# PROGRESS IN A DECADE

In its natural state, Arizona is about as different from the northeastern quarter of the country as can be conceived. It therefore has always had a certain amount of shock value for visitors from New York and Chicago, and the first and most obvious interest expressed by such visitors used to be in its advantages as a vacation area.

It has taken somewhat longer for Easterners to recognize the value of the area not only as a place to get away from work but as a place to work. Several factors have played a part in this readjustment of thinking.

One factor of great importance has been the tremendous growth of industry in Southern California, where the environment is intermediate between that of the East and that of Arizona. Once manufacturers became convinced that mild winters and sunshine were conducive to high production schedules as well as to relaxation for those on vacation, they had learned a lesson necessary to their later adaptation to Arizona.

Other important factors have been the continued improvements in water supply technology, the spread of air-conditioning, and improved transportation connections.

The revolutionary force of the manufacturing growth in Arizona is shown by the following table, taken from the Arizona Directory of Manufacturers, 1960:

Industry	Employment	
	1950	1959
Food .....	3,300	6,600
Lumber .....	2,800	3,800
Printing .....	1,700	3,200
Primary metal .....	3,200	4,700
Machinery .....	800	6,300
Ordnance, aircraft .....	700	11,600
All other .....	3,000	9,700
Total .....	15,500	45,900

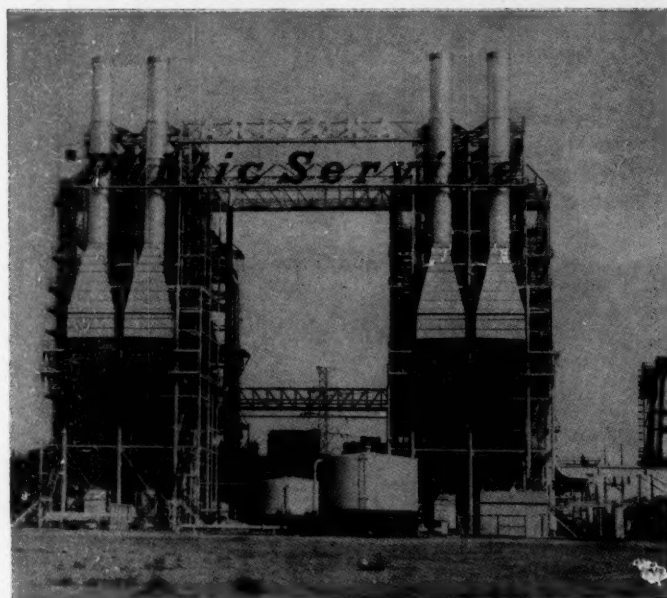
Note that the missile and aircraft industries have moved from the bottom of the list to the top in nine years. This is of course somewhat of an oversimplification, since defense industries had been very important in the state during World War II, when figures on employment were not made available, but they were mostly of a temporary nature and had been heavily cut back by 1950.

## Slow Start

Under the Spanish, Arizona was a part of New Mexico, and was less developed than the area along the



A large watered island in a desert sea, the Yuma area shows the dramatic transformation possible where irrigation water—in this case directly from the Colorado—is available. As the nearest of Arizona's cities to the metropolitan areas of Southern California, Yuma is a natural as a warehousing and manufacturing center operating under Arizona's favorable "open port" tax set-up.



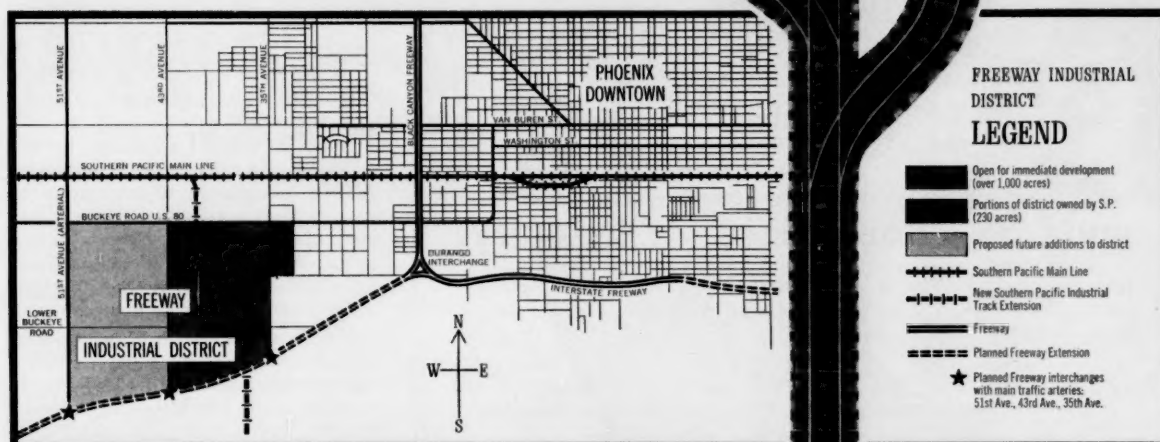
Glen Canyon Dam promises to have much the same effect on the economy of northern Arizona that the Hoover Dam had on southern Nevada. Flagstaff, 124 miles south, is the railhead and main supply base, and is growing rapidly on a carefully planned basis into a sub-metropolitan center. Completion of the dam is scheduled in 1963.

The bold pattern of Arizona Public Service's Ocotillo thermal plant at Tempe illustrates the open construction of large installations made possible by the mild climate. Utilities in the state are stretching out far and wide in their expansion programs to anticipate the future power and gas needs.



The magnitude of Arizona construction operations is shown by the huge hoppers at Glen Canyon to receive cement from the Phoenix Cement plant at Clarkdale for use in building the dam.

# Southern Pacific announces the opening of the Freeway Industrial District in Southwest Phoenix



Recent Southern Pacific spur track construction in Southwest Phoenix has opened more than 1,000 acres of prime industrial property for immediate development.

The new area, named the Freeway Industrial District, is the largest tract of open land close to downtown Phoenix available *right now* for modern industrial plants. The planned Interstate Freeway west from the Durango Interchange will directly serve the area, making it ideal for business requiring direct access to all of Greater Phoenix.

A development program is underway to maintain freedom from the congestion found in many older industrial areas.

Companies locating in the Freeway Industrial District will find ample, assured

room for plant growth. The Freeway District's location and planned development of streets, utilities, S. P. spur tracks and other facilities are for growth now—and in the future!

The new area is splendidly suited to the needs of:

**Existing Arizona industries that have outgrown their present locations or find them otherwise unsatisfactory.**

**Industries of the type Arizona wishes to attract as desirable additions to the state's business roster.**

Southern Pacific has played a major part in planning the Freeway Industrial District, just as we have spearheaded the development of other choice locations for industry in Southern

Arizona and throughout the Western and Southwestern states we serve. The Freeway District is further evidence of our program to foster well-planned industrial growth throughout the Golden Empire.

For more information about the Freeway Industrial District, write or wire: F. E. Whiteher, General Freight & Passenger Agent, or Fred LaWell, Industrial Agent, Southern Pacific Company, 234 North Central Avenue, Phoenix, Arizona. Your inquiry will be held in strictest confidence.



## Southern Pacific

Serving the Golden Empire with  
TRAINS • TRUCKS • PIGGYBACK • PIPELINES

## ARIZONA

Rio Grande, chiefly because it had fewer settled Pueblo Indians. The nomadic Navajo and Apache did not stay put long enough to warrant a vigorous Spanish missionary or military effort and the Hopi were both remote and hostile. Tucson, where there was a long-established Pima community, became the chief center of Spanish activity during the late 18th century.

American occupation began in 1848 for the area north of the Gila River, and in 1854 in the Gadsden

Purchase south of the Gila. Early growth, centering on mining and cattle ranching, was precarious until the Apache were finally tamed with the surrender of Geronimo in 1886. Meanwhile the Santa Fe, building westward and the Southern Pacific, building eastward, both crossed the state in the early 'Eighties.

As recently as 1900, Arizona had only 123,000 people — just a little over one per square mile and not one-tenth of the current total. But

the passage of the National Reclamation Act in 1902 made possible the formation of the Salt River Valley Water Users' Association the following year and the formation of plans for large-scale irrigation in the area around Phoenix.

This year the state is celebrating the 50th anniversary of the completion of the Roosevelt Dam on the Salt River — an event that all but overshadows the admission of Arizona as the 48th state in 1912.

To the two C's of Arizona's early development — copper and cattle — a third was now added: cotton, and later a fourth: citrus. Meanwhile, health-seekers and vacationers began arriving by train to soak up some sunshine, and a fifth C—climate—began to be recognized as a major asset.

### It's a Big Country

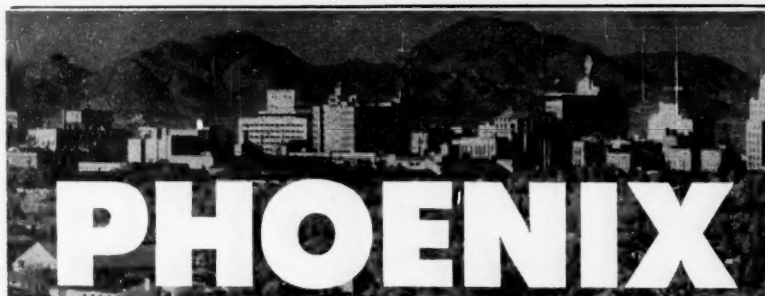
Unlike the other seven Mountain States, Arizona has a large area at a low elevation, since it contains part of the Colorado River's delta, inland from the head of the Gulf of Colorado. Lowest elevation in the state is 100 feet near Yuma.

Nearly all of Arizona is drained by the Colorado River; part of the southeastern corner drains southward into the Rio Yaqui of Sonora, Mexico. Two tributaries of the Colorado — the Little Colorado in the northeast and the Gila in the south — actually drain much more of the state than the Colorado itself.

The Phoenix area is the hydrographic center of the southern part of the state, since the Verde, Salt, San Pedro and Santa Cruz all converge on the Gila between Hayden and Avondale.

Extending diagonally across the state from the southeastern corner to Lake Mead — the reservoir behind the Hoover Dam — is a belt of mountains and high escarpments, such as the conspicuous Mogollon Rim.

Eastward and northward extends the Colorado Plateau, through which the Colorado has carved the most awesome natural spectacle in the world — the Grand Canyon. The Plateau ranges from 4,000 to 8,000 feet in elevation and is made up of massive sedimentary formations ranging through most geologic periods.



## must be a good place for industry

because these industrial giants, leaders in their fields, have located here; plus a host of other concerns who, through the years, have grown happily in this area:

**AilResearch Manufacturing Company of Arizona**  
(Division of Garrett Corporation)

**Albert of Arizona, Inc.**

**Allison Steel Mfg. Co.**  
(Division of Kaiser Industry Corporation)

**Cannon Electric Company**

**Capitol Foundry**  
(Division of National Malleable & Steel Castings Co.)

**Consolidated Western Steel**  
(Division of United States Steel Corp.)

**The Cudahy Packing Co.**

**General Electric Company**  
Computer Department

**Goodyear Aircraft Corp.**

**E. L. Gruber Company**

**Grunwald-Marx**

**International Metal Products Co.**  
(Division of McGraw-Edison Company)

**Kaiser Aircraft & Electronics**  
(Division of Kaiser Industry Corporation)

**Motorola, Inc.**  
(Semi-Conductor Products Division)

**Motorola, Inc.**  
(Western Military Electronics Center)

**Olin Mathieson Chemical Corp.**  
(Western Fertilizer Division)

**Phoenix Engineering & Mfg. Co. (PHEMCO)**  
(Subsidiary of Telecomputing Corp. of Los Angeles)

**Reynolds Metals Company**

**Rocket Power/Talco**  
(Division of Gabriel Company)

**Sperry Phoenix Co.**  
(Division of Sperry Rand Corp.)

**Sun-Ray of Arizona, Inc.**

**U. S. Semiconductor Products**  
(Division of United Industrial Corp.)

**Western Electric Company**

**Wright Manufacturing Company**

*We are confident you, too, will like the Phoenix area  
as a location for your business.*

**INDUSTRIAL COMMITTEE**  
**Phoenix Chamber of Commerce**

805 North Second Street, Phoenix 4, Arizona





## ARIZONA

South and west of the main mountain belt the prevailing level of the desert floor is under 2,000 feet, but it is punctuated here and there by fault block mountains several thousand feet higher. Almost any wide landscape anywhere in the state includes mountains, often with a heavy forest cover on the upper slopes.

Arizona has within its borders a large share of American territory where freezing temperatures are rare and minima of 10 degrees have never been recorded. It has an even greater share of the area where the sun shines 80 per cent or more of the total possible hours.

Sensible temperatures during the summer, despite daytime thermometer readings in the desert of over 100, are comparable to those in a wide belt through the Middle West, due to the low humidity. Another great advantage of the low humidity is the efficient operation of evaporative air-conditioning units.

The higher northern half of the state has lower temperatures both in summer and winter, as do the upper levels of the mountain ranges scattered here and there through the southern half of the state. These areas include many popular summer resorts and winter sports centers.

The higher areas also receive most of Arizona's rainfall and feed the rivers that water the lowlands. The forests they support are valuable both for timber and as prime recreational areas, notably for hunting and fishing.

### Lifeblood

The story of water, which in a real sense is the story of Arizona, is found in the extension of the network of dams, irrigation canals, laterals and ditches on the Salt, Verde and Gila; the development of ground-water irrigation by pumped wells, and the big dams on the Colorado.

Getting its share of the Colorado's water has been a major concern of Arizona for decades, since the 7,500,000 acre-feet of water at the disposal of the Lower Basin states of California, Arizona and Nevada is so much greater than the 2 million acre-feet furnished by the Gila and its tributaries.

In May 1960, Special Master Si-



Join the  
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**NORTHERN  
ARIZONA**

At Clarksdale — Phoenix

\$16 million plant is producing

Cement Company's new

Cement for huge Glen Canyon Dam.

South of Winslow—Southwest Forest Industries is building a \$40 million pulp mill in the nation's largest uncut stand of Ponderosa pine.

Throughout colorful Northern Arizona, industry is finding what industry needs:

- A brand-new system of high-speed, high-capacity highways and railways.
- Technically-trained personnel from Arizona State College at Flagstaff.
- A willing, adaptable labor force—augmented by the thousands of naturally-gifted craftsmen from Northern Arizona's Indian reservations.
- Year-around resort climate and recreation—to attract and hold your key personnel.
- A plentiful supply of low-cost natural gas!

Your questions will be answered promptly by the Chambers of Commerce in:

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COTTONWOOD  
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HOLBROOK  
JOSEPH CITY  
KINGMAN

PRESCOTT  
SHOW LOW  
SNOWFLAKE

WILLIAMS  
WINSLOW

## ARIZONA

mon H. Rifkind, appointed by the U. S. Supreme Court, submitted his report awarding Arizona 2.8 million acre-feet of the Lower Basin's share. If the Supreme Court decides the case along the lines of Rifkind's recommendations, the way will be clear for a start on the ambitious Central Arizona Project.

This will involve a new dam 700 feet high in Grand Canyon to provide power for pumping water now backed up by the existing Parker dam over a watershed 985 feet

above the present level of Havasu Lake. From that point, the flow will be by gravity to the Phoenix area, and a series of interconnecting canals will distribute it directly or indirectly as far as Tucson and the upper Gila.

This would remove whatever threat that currently exists of a ceiling on the growth of parts of the state because of a future water shortage.

Meanwhile, industrial growth and Phoenix, Tucson and elsewhere has

actually contributed to the state's available water, rather than subtracting from it, since most factories have been built on land formerly used for irrigated farming, which has much greater water requirements than most industrial uses.

Further supplies of water, therefore, will help to expand the agricultural base, as well as the industrial, when the present surpluses of cotton and some other crops are reduced.

Now far advanced in construction is another major dam and reservoir — Glen Canyon. Visitors to the area can watch from the Glen Canyon Bridge at the massive concrete pile now taking shape and destined to rise 700 feet above bedrock. The projected 28 million acre-feet of storage are about as large as Lake Mead behind Hoover Dam.

The dam is intended to regulate the flow into Lake Mead and to provide storage so that up-stream dams can be used more efficiently to meet Upper Basin requirements for irrigation. It will not provide irrigation water directly itself. The hydroelectric installation planned for the dam will have an ultimate capacity of 900,000 kilowatts. Arizona is reaping the economic benefits of its construction and will share heavily in the recreational possibilities it will open up, in addition to any power made available.

### Wires and Pipes

The major electric utility in the state is Arizona Public Service, with headquarters in Phoenix and serving more than half of the state's customers in an irregular area extending to all four of its boundaries. The company is building the 115,000-kilowatt Cholla plant near Holbrook and has started on the 350,000-kilowatt Four Corners plant near Farmington, New Mexico. Both plants will burn sub-bituminous coal from New Mexico, and will be connected to the main system by a 345,000-volt transmission line 310 miles long from Farmington to Phoenix.

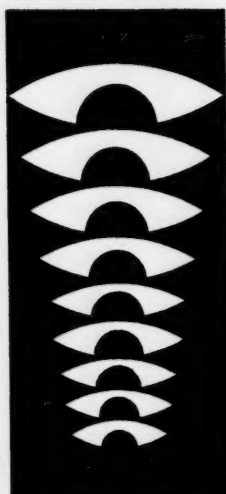
The Four Corners plant, which will be a mine-mouth plant, is scheduled for ultimate expansion to a million kilowatts, equivalent to the present generating capacity of the company.

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CLIMATE CAPITAL  
OF THE NATION

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another reason why ...

INDUSTRY'S  
EYES  
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All inquiries held in strict confidence

## ARIZONA

Tucson Gas, Electric Light and Power serves the Tucson area, some neighboring mines and Fort Huachuca, and is the second largest privately owned power company. A new 100,000-kilowatt unit for its Irvington plant is scheduled for completion in 1962.

In connection with this new unit, the company has drilled a new well 2,500 feet deep which yields 3 million gallons per day; the discovery of water of good quality at that depth represents an important addition to Tucson's water resources.

The Salt River Project, a public body, is one of the state's large power systems as well as a major supplier of irrigation water; it serves part of Phoenix and a number of neighboring communities. It operates steam plants as well as the hydroelectric plants associated with its dams. A 165,000-kilowatt unit is now nearing completion at the Agua Fria station.

The Bureau of Reclamation dams on the Colorado supply at wholesale a great deal of the power used in the state, although the majority of their power is used in California and Nevada. The Arizona Power Authority serves as an intermediary in distributing to Arizona utilities.

There are a number of small privately owned utility companies, municipal systems, and rural cooperatives.

The three large gas companies are Arizona Public Service; Tucson Gas, Electric Light and Power; and Southern Union Gas. Southern Union, with local headquarters in Flagstaff, serves the cities and towns along the Santa Fe main line, and Prescott and the new Snowflake Paper mill as well. Otherwise, the territories are substantially the same as for electric power.

El Paso Natural Gas supplies gas to all distributing companies.

### Fast Trip

Two transcontinental railroads span the state and their branches reach out into all major producing areas. Both the Santa Fe and the Southern Pacific serve Phoenix; everything south of Phoenix is in Southern Pacific territory and everything north is in Santa Fe country.

Southern Pacific has two separate routes for most of its course across

# Tucson

"For Industry and a Way of Life!"



Tucson's business climate is good for industry  
Your plant is Wanted and will be Appreciated.

**LABOR**—Excellent labor supply of Skilled, semi-skilled and unskilled. Arizona has right-to-work law. Wages fair and reasonable.

**TAXES**—NO manufacturers inventory tax. NO City income tax in Tucson. Low Corporate Income Tax.

**POWER**—Electricity and Natural gas rates are lower than in most industrial centers. Adequate electric capacity for growth.

**LOCATION**—Tucson is the center of the large electronic testing facility . . . U.S. Army Electronic Proving Ground, Fort Huachuca. Tucson is the home of the University of Arizona, rated high among the nation's colleges and universities.

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Southern Pacific's Tucson classification yard is a focal point of its southern Arizona empire. At the upper right are the car cleaning and repair shops of Pacific Fruit Express, which is jointly owned by Southern Pacific and Union Pacific.



The University of Arizona, part of whose campus at Tucson is shown here, is one of two major universities in the state, the other being Arizona State at Tempe, next door to Phoenix. Both are actively engaged in research projects in cooperation with industries and governmental units in the area. The University of Arizona is breaking new ground both with its Institute of Atmospheric Physics, which is studying cloud formations and rain, and its Solar Energy Research Center.



Both Phoenix and Tucson have undertaken systems of freeways and through routes. This interchange at Sixth Avenue and U. S. 80 is in South Tucson.



Arizona has two major observatories—the new Kitt Peak National Observatory southwest of Tucson and Lowell Observatory at Flagstaff. This is the office area at Kitt Peak, which is run by eight universities incorporated as the Association of Universities for Research in Astronomy, headed by Dr. Aden B. Meinel. The site was picked because of exceptionally favorable visibility conditions—a factor which was also responsible for the removal to Flagstaff of the Perkins Observatory telescope from Delaware, Ohio.



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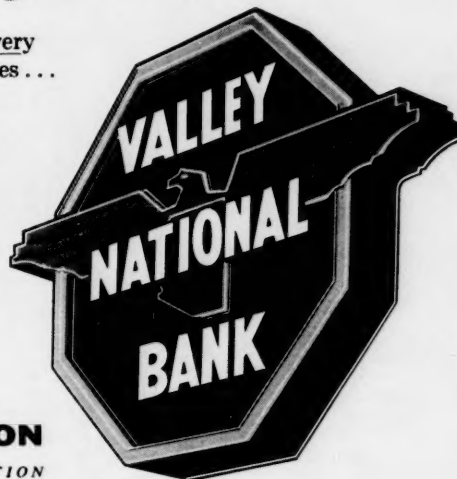
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## References of Value to the Site-seeker

Arizona Development Board, 1521 W. Jefferson St., Phoenix

Bibliography for Industrial Arizona, 25 pp., revised 1960.

Amazing Arizona (Series)  
Arizona Taxes and You, 1958  
Natural Resources  
Arizona Has Trees  
Recent Migration, 1959

Arizona Industrial Facts (Packet)

## Annual Reports:

Arizona Power Authority, 1810 W. Adams St., Phoenix

Arizona Public Service Co., 501 S. 3rd Avenue, Phoenix

Department of Mineral Research, Phoenix

First National Bank of Arizona, 411 N. Central Ave., Phoenix

Industrial Commission of Arizona, Phoenix

Salt River Project, 1521 Project Drive, Tempe

U. S. Geological Survey, Arizona Title Bldg., Phoenix  
(separate reports on ground and surface water)

University of Arizona, Agricultural Extension Service, Phoenix  
Arizona Agriculture

Audits of the following Arizona cities have been accepted by the International Community Audit Registry: Bisbee, Coolidge, Tucson.

Industrial Commission of Arizona, State Labor Department, Phoenix  
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League of Arizona Cities and Towns, 846 Security Building, Phoenix

Directory of Arizona City and Town Officials, 1959

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Arizona Statistical Review, Annual, 40 pp.

University of Arizona, Bureau of Business and Public Research, Tucson

Arizona County Base Book, 151 pp., 1958

Community brochures from Chambers of Commerce in Benson, Bisbee, Buckeye, Casa Grande, Coolidge, Douglas, Flagstaff, Gila Bend, Glendale, Globe-Miami, Holbrook, Mesa, Nogales, Phoenix, Stafford, Tombstone, Tucson, Willcox, Williams, Winslow and Yuma, and from the Prescott Foundation for Industrial Development.

the state. From Eloy to Yuma the longer route runs by way of Phoenix and a cut-off goes through Casa Grande and Gila Bend. Eastward from Benson the main freight line to El Paso runs near the Mexican border, through Douglas, while the main passenger line runs farther north, through Lordsburg, New Mexico.

At Tucson the main line is met by a branch from Nogales, where a connection is made with the main line serving the west coast of Mexico.

The double-track Santa Fe main line runs through Holbrook, Winslow, Flagstaff and Kingman. It includes a recently completed 44-mile stretch of new track laid to by-pass steep grades and a narrow tunnel near Williams. Freight trains will save more than an hour using the new route.

Santa Fe's service out of Phoenix branches at Wickenburg, with traffic for the West Coast moving over the line crossing the Colorado River at Parker to join the main line within California. Traffic headed eastward moves north out of Wickenburg to reach the old main line at Ash Fork.

The emerging Interstate Highway pattern will produce two main transcontinental routes and three branches. Route 40 in the north will follow the line of Federal 66 and the Santa Fe. Route 10 will enter the state from Lordsburg, New Mexico, and go through Tucson and Phoenix on its way to Los Angeles.

The branches will be Route 17 between Phoenix and Flagstaff, Route 8 from Casa Grande to Yuma on its way to San Diego, and Route 19 from Tucson to Nogales.

Phoenix and Tucson are important destinations on both American and Trans World Airlines and on Delta's and National's extended routes to the West Coast. Western Air Lines also operates out of Phoenix, and American also serves Douglas-Bisbee.

Intraregional lines are of great importance in tying in the smaller cities. Frontier serves Winslow, Flagstaff, Prescott and Safford-Clifton as well as the two large cities. Bonanza serves Flagstaff, Prescott, Kingman, Yuma, the Grand Canyon area and the Glen Canyon construction site of Page, as well as

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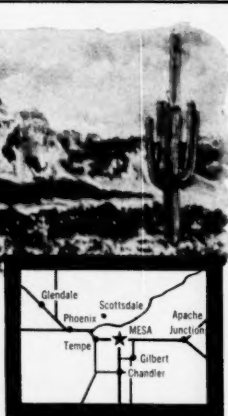
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### Mines and Farms

Arizona is primarily a metal ores state, with copper far out in front of all other minerals combined. It has led the nation for decades in copper production, in some years accounting for nearly half of the total. The leading mining areas are Morenci (Phelps-Dodge), San Manuel (San Manuel Copper), Bisbee-Douglas (Phelps-Dodge), Globe-Miami (Inspiration Consolidated and Copper Cities), Ajo (Phelps-Dodge) and Ray-Superior (Kennecott and Magma).

Smelters are located at Douglas, Morenci and Ajo (Phelps-Dodge) and at Hayden (American Smelting and Refining). International Smelting and Refining has a blister copper plant at Inspiration.

Uranium produced in the state in 1959 amounted to 1.5 million pounds of uranium oxide. There is a mill at Tuba City with a capacity of 300 tons of ore a day.

Silver and gold are produced primarily as byproducts of copper mining.

Northeastern Arizona is close to major gas and oil fields in New Mexico and Utah and a number of successful wells have been drilled within the state.

Open-pit mining of magnetite will become a factor in the state's economy with the completion of a direct-reduction steel ingot plant at Coolidge being built early this year. The magnetite deposit to be used is south of Florence and is estimated to contain 22 million tons of ore.

Mineral production in the state has exceeded \$300 million in value since 1955, with copper accounting for about  $\frac{1}{2}$  of the total. Sand and gravel, zinc and cement were the next ranking items in 1959.

Arizona agriculture is almost entirely based on irrigation, and although less than 2 per cent of the state's area is cultivated on its 9,000 farms, the yields are so great that the farm income in 1959 was no less than \$411 million. Two crops a year are common because of the long growing season.

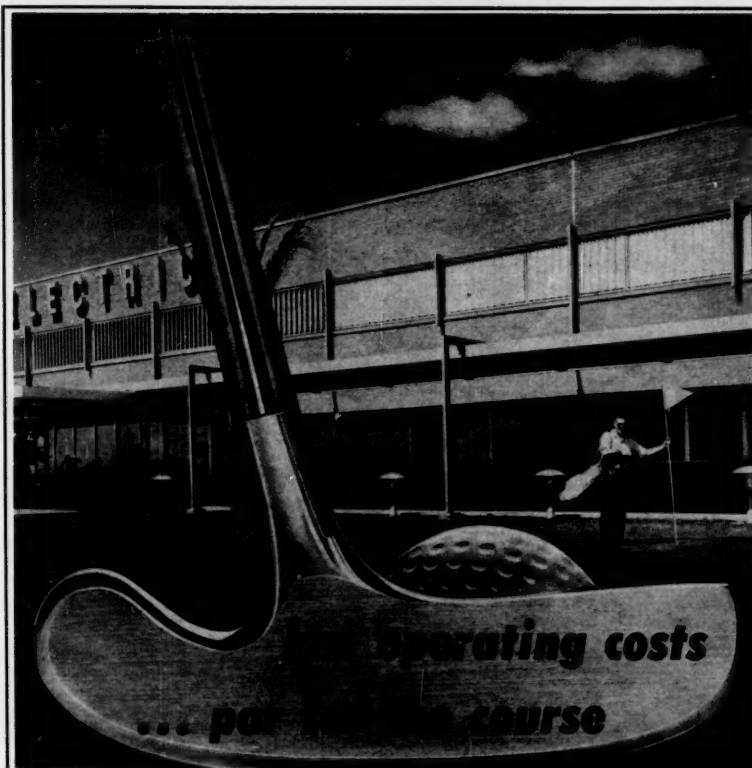
Long-staple cotton, highly prized

for fine goods, is by far the leading crop, and Arizona has come up rapidly to rank fifth nationally, with 781,000 bales in 1959. Lettuce, alfalfa, cantaloupes and citrus fruits are other leading crops. Livestock contribute about a third of the state's farm income; much of this comes in the form of live cattle, meat and wool.

Arizona now leads the country in Indian population, with about 80,000, mostly on the large Navajo

and Hopi reservations in the north-eastern corner of the state and the Fort Apache and San Carlos reservations of the Apache in east-central Arizona. Elsewhere, the Indians are a small minority in a white sea.

A marked improvement in the condition of the Indians has come about as a result of a number of recent developments, not least of which are the discoveries of large quantities of natural gas and urani-



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## ARIZONA



Bordering Phoenix' Sky Harbor Airport is AiResearch Manufacturing Division of the Garrett Corporation, already one of the city's chief employers; it makes aircraft and missile components.



Hughes Aircraft in Tucson, maker of the Falcon missile, is the state's largest employer. It lies just south of the Tucson airport, which is in the background. Tucson has also been selected as the site of an \$85 million underground Titan complex.

Motorola's Semiconductor Products Division was originally housed in the one-story section of the plant shown in the foreground; its first expansion was the two-story addition at the right and its second expansion is already under construction. Motorola also has its Western Military Electronics Center in Phoenix.



The Southwest's first paper mill is now under construction at Snowflake, near Holbrook in northeastern Arizona, where it can draw on the largest reserves of Ponderosa pine in the mountain country to the south. It will be operated by Southwest Forest Industries and has contracted with Hearst Publications to take a large share of its output. This is the first really large industry in the Indian Country, and will help to broaden the economic opportunities of the Navajo and Apache.

### ACROSS-THE-BOARD GROWTH AHEAD

Arizona's future as a manufacturing state is very bright. It is riding trends that can be expected to strengthen, rather than taper off, in the future. Now that its prospects for additional water supplies are so good, the one possible limiting factor appears to have been removed.

Its greatest advantage is the pace and character of the post-war development and the atmosphere of progress, modernity and technological proficiency that has been created. The underlying advantages of climate and location which helped to bring about this development are only now beginning to be fully exploited.

Although continued growth of electronics and other defense-related lines will undoubtedly continue, the stage has now been set for an across-the-board advance such as has already taken place in California and Texas. The local market is already large enough to warrant serious consideration, and Southern California is close enough to be considered a potential market for many types of goods.



um ore in the New Mexico and Utah portions of the Navajo Reservation. Royalties from mineral rights have added greatly to the per capita income of the Navajo and have made possible a major extension of educational facilities and of scholarship grants for Navajos at schools and colleges outside the reservations.

### Some Big Names

During World War II, the Federal Government began to encourage the dispersal of large defense installations away from heavily industrialized areas, particularly those on the coast. Both Phoenix and Tucson attracted war plants and training installations were developed in various parts of the state.

Manufacturers soon found that the mild winters and low humidity cut down on heating and maintenance costs and made the area ideal for year-round testing and other out-of-door operations. Also that air-conditioning of office and manufacturing space and of homes and even cars made the desert areas delightful 12 months of the year, instead of just eight.

During the 50's, Phoenix was selected by Motorola as the site of both its Semiconductor Division and its Western Military Electronics Center. AiResearch, another newcomer, grew to rival Motorola as the city's largest employer, and Sperry-Phoenix and General Electric also put in major installations, while Good-year Aircraft bought up its government-owned plant in nearby Litchfield Park when it was released by the War Assets Administration.

Meanwhile, Hughes Aircraft came to Tucson and has become the largest employer in the state.

Smaller companies have flocked in and others have sprung up locally or evolved from existing companies engaged in other types of work. Examples are D'Velco, Heyne Machine, Phoenix Engineering and Manufacturing, Vernon Tool and a recent recruit, Cannon Electric, in Phoenix and Talco Engineering in Mesa. In Tucson the list includes Bell Aero-systems, Pan American World Airways, and RCA, which has just entered the scene.

Outside the metropolitan areas, some of the major new plants include the Snowflake paper mill under construction near Holbrook; the

Clarkdale plant of Phoenix Cement, which is supplying a large part of its output to Glen Canyon Dam; proposed plants at Coolidge and Parker to concert iron ore to pig iron by the Madaras process; and an apparel plant at Yuma.

The Federal installation at Fort Huachuca, near Douglas and Bisbee, has greatly expanded as a Signal Corps electronics center, and a testing range extending from the fort westward to Yuma has been set up.

The state's tax program has been

adapted to the needs of industry. There is no inventory tax on raw materials, parts or finished products, and machinery and equipment are assessed at 50 per cent of book value. The state income tax is on net income only, after deduction of the Federal income tax, and for corporations the rate ranges from 1 to 5 per cent.

The Unemployment Insurance Tax ranges from 0.5 to 2.7 per cent but the state average of 1.26 per cent is well below the national average.

## YUMA, ARIZONA....

On the border of two of the fastest growing states in the nation... halfway between Phoenix and San Diego.

Yuma and Yuma County are growing at a faster rate than all other comparable political subdivisions in Arizona, according to the Stanford Research Institute. Yuma has...

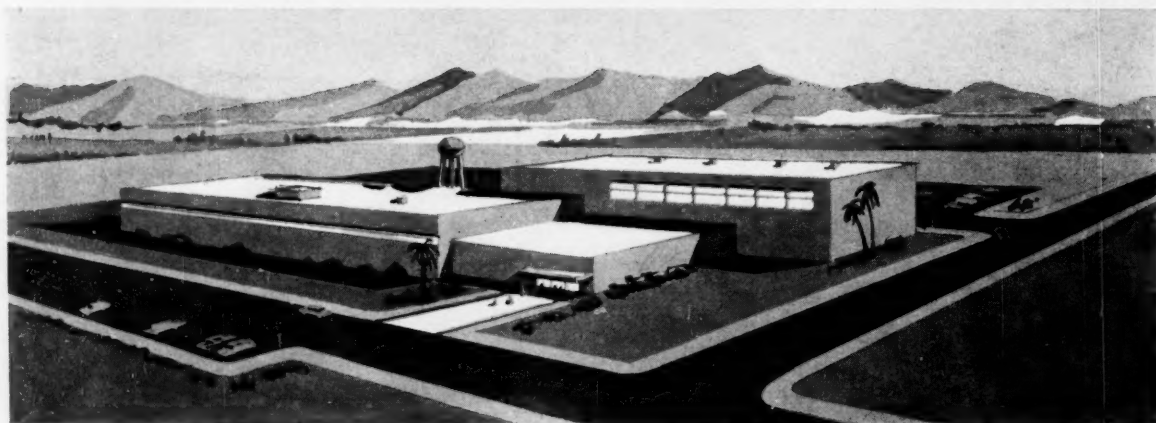
1. A long term plan and a Planning and Zoning Director.
2. Available sites at reasonable per acre prices.
3. An excellent supply of labor in the area to fit any foreseeable situation (Figures available from Arizona State Employment Service, Yuma).
4. Transportation connections on a regular basis by Air, Road and Rail both East and West.
5. A favorable tax climate in a "Right to Work" state that has led to the establishment of several warehousing operations.
6. Heat... but not humidity! This gives us an enviable year-round climate. While we often have the high temperature, at the same time our humidity is probably the lowest reported. This makes the temperature and humidity index called the "comfort factor" one of the most favorable in the nation.
7. Yuma's greatest natural resource is an abundant and reliable water supply both from the Colorado River and proven vast underground water, too.
8. Other utilities include a new 80,000 kw plant operated by Arizona Public Service Company. Sewage facilities to meet the needs of a city of 55,000 are also provided.

For the full story, including disadvantages as well as advantages, contact:

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# DEVELOPMENTS IN PLANT LOCATION THEORY

By Dr. V. W. Ruttan and Dr. L. T. Wallace

Recognizing the growing emphasis on scientific methods in industrial expansion planning, ID is pleased to introduce a new editorial series on location theory. Objective of these reference studies is to provide expansion-planning executives with a rudimentary knowledge of the theoretical principles accepted by the most astute students of industrial location as a science.

ID's consulting editor for this program is Dr. Melvin L. Greenhut, author of the text "Plant Location In Theory And Practice" and a well-known figure in this highly-specialized field. Now associate dean of the School of Business Administration, University of Richmond, Dr. Greenhut is also author (with F. H. Jackson) of "Intermediate Income and Growth Theory" and, soon to be released, "Full Employment, Inflation, and Common Stock."

The accompanying report by Ruttan and Wallace begins the technical series. Additional contributions will follow in subsequent issues.



Dr. V. W. Ruttan, professor of Agricultural Economics at Purdue, is a frequent contributor to learned journals. He studied at Yale and at the University of Chicago, where he took his doctorate. Prior to coming to Purdue in 1954, he did economic research and project review for the Tennessee Valley Authority.



Dr. L. T. Wallace, Assistant Professor of Agricultural Economics at Purdue, has degrees from Harvard, Oregon State and Purdue. His Ph. D. dissertation at Purdue (1960) was "Factors Affecting the Location of Industry in Southern Indiana."

**I**N recent years there has been increasing concern with regional differences in economic growth within the nation. Interest has focused on industrialization as a key factor in total area development. It has prompted new speculation on how and why industrial plants are attracted to specific localities.

Plant location theory has passed through three phases<sup>1</sup>: During the first phase interest was concentrated primarily on location factors which directly affected the production costs of the plant or firm. Thünen, Weber, and Predöhl typify this "least cost site" school of thought. Their analyses were based on assumptions of perfect competition<sup>2</sup> with product demand concentrated at a single market. Thünen substituted transport costs for land rent to estimate the theoretical least cost location for various types of agricultural production. Weber used the same factors of rent and transport cost to find the least cost location for industrial production. Predöhl refined Thünen's and Weber's work by applying a general equilibrium approach<sup>3</sup> to the site selection process. He attempted to incorporate

<sup>1</sup> For a more detailed discussion of these three phases see W. Isard, *Location and Space Economy*, M. I. T. Press and Wiley, 1956; M. L. Greenhut, *Plant Location in Theory and Practice*, University of North Carolina Press, 1956.

<sup>2</sup> Perfect competition is broadly defined by economists as an economy in which the producing units are so many and so small that none of them can control price. Imperfect competition means that the producing units are few enough and large enough so that one or each of them can control price.

<sup>3</sup> A general equilibrium approach attempts to consider the complete set of economic relationships among all firms in the economy. This is in contrast to partial equilibrium approaches which concentrate on a limited number of strategic relationships which primarily affect the firm. The Leontief input-output analysis is one of the more widely known attempts to utilize the general equilibrium approach.

## LOCATION THEORY

all the factors affecting supply, demand, and input-output relationships.

### Markets in Location Process

The second phase of location theory focused on the role of markets in the location process. More realistic notions of uneven population and resource distribution, imperfect competition through site control, and the interdependence of firms within a multi-market economy were utilized. Hotelling, Ohlin, Palander, Hoover, Fetter and Smithies made important contributions in this phase.

Hotelling treated producer and consumer reactions to changing prices resulting from competition among a number of producers or distributors.

Ohlin developed a regional approach to location which took into account regional comparative advantages in production, differential market responses to price changes, and regional differences in factor and product supplies.

Palander formulated and improved general equilibrium approach to location. It differed from earlier attempts by taking explicit account of market relationships in an historical and institutional context.

Hoover tentatively combined the least-cost approach and the market interdependence approach using transport and production costs. He evolved a broader presentation of location theory incorporating both market demand and institutional factors.

Fetter and Smithies discussed the implication of market structure, particularly monopoly and monopolistic competition, on the location of the plant or marketing firm. The net effect of this emphasis on the role of markets was to bring location economics more closely within the framework of traditional economic theory and to improve its usefulness in solving practical location problems.

### Profit Maximization

During the third phase emphasis was placed on profit maximization rather than placing primary attention on either costs or market. Lösch articulated one of the first maximum

profit theories by stressing that it was the difference between total costs and total revenue that determine the firm's optimum site. Isard contributed to the integration of the two earlier approaches and also emphasized the personal elements affecting location decisions.

Greenhut developed a mathematical model integrating the effects of both monetary and non-monetary costs and returns on plant location. Recently, Moses<sup>4</sup> attempted a more complete integration of location economics and the economics of production by incorporating prices of inputs, transportation rates on inputs and final products, the geographic location of inputs and markets, input-output relationships within the plant, and relationships between output levels and product prices in his analysis.

### Location Factors

Throughout the development of plant location theory there has been a continual refinement in the classification of factors affecting location. There are two generally recognized groups of location factors: (1) Economic factors bearing directly on specific plant operations. These factors have an immediate and direct effect on a firm's assembly, production, and distribution costs and returns. Wages, utility rates, freight rates, and costs of raw materials are example. (2) Environmental factors which involve the social, institutional, cultural, and political aspects of an area or community. These factors have an indirect influence on a plant's costs and returns through the impact of external economies and diseconomies associated with the size and rate of development of the city, area, or region in which the plant is located. Training facilities which produce a pool of skilled labor, employment information services, effective urban planning, availability of universities and research centers, recreation facilities and other "amenities" are examples.

Location economists have traditionally considered plant location primarily from the viewpoint of the individual firm involved. Location factors were generally evaluated as "givens," and cost or profit projections made by the firm on the basis of the existing situation.

Increasing attention is now being given to analyzing the impact of volitional changes in policy at the community, state, and national levels, which affects the location of individual firms.<sup>5</sup> Urban and area development programs, public and private development corporations, local efforts to attract new firms by the use of tax, site and other direct incentives are examples.

These efforts imply that plant location involves something more than the simple interaction among conventional location factors. Under these conditions the optimum location is frequently determined by a transaction whose outcome is the result of bargaining between the firm and the community.

Other areas to which location economists are devoting increasing attention include interregional competition and regional economic development.<sup>6</sup> The relative influence of location factors over site selection, the predictability of location decisions, and the demand for sites all vary with the geographic area in which the location analysis takes place.

Area comparative advantages exist in the form of nearness to product or supply markets, availability and quality of labor and transport, physical site characteristics, and location incentives offered by state or local authorities. Differences in regional growth affect plant location in two ways: (1) some firms have rising production and distribution costs in a rapidly growing area, while other firms experience lower unit costs. (2) The size and character of available markets may change, calling for new or modified product lines while making others obsolete.

Along with the evolution of the three phases of location theory, the classification of location factors, and

<sup>4</sup> See L. N. Moses, "Location and the Theory of Production", *Quarterly Journal of Economics*, Vol. LXXIII, May 1958.

<sup>5</sup> For a more complete discussion of volitional forces and industrialization at the community level see L. T. Wallace and V. W. Ruttan, "The Role of the Community as a Factor in Industrial Location," to be printed in "Regional Science Association 1960 Proceedings."

<sup>6</sup> For an example of application to industry see J. Airov, *The Location of the Synthetic-Fiber Industry*, M. I. T. Press and Wiley, 1959; for application to agricultural marketing see M. M. Snodgrass and C. E. French, "Linear Programming Approach to the Study of Interregional Competition in Dairying", S. B. 637, May 1958, Purdue University Agricultural Experiment Station.



## LOCATION THEORY

the recognition of regional and local growth differences, there has been a growing desire to make practical use of the newer theoretical and analytical techniques.<sup>7</sup>

Operational models have been developed that use simultaneous equations linear programming, and other mathematical input-output relationships. Electronic computers, coupled with the increased skills of economists, have permitted the solution of more timely and complex location problems.

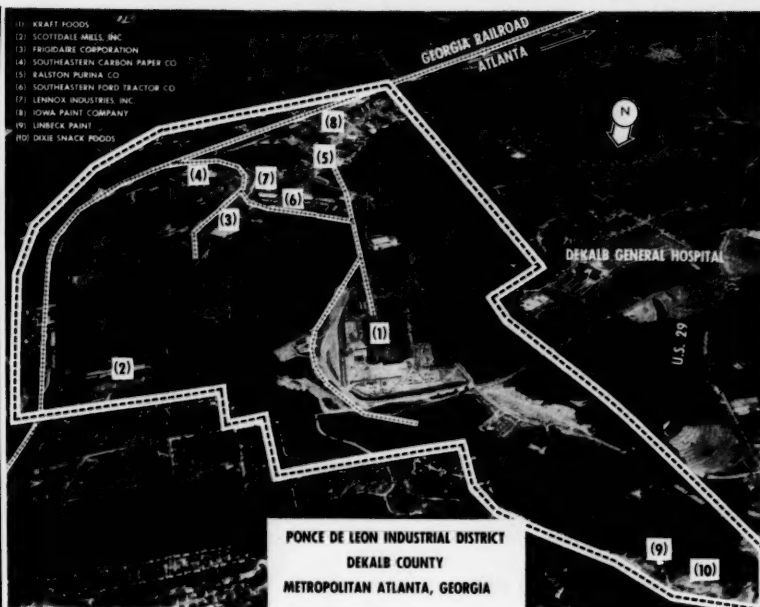
As an example, R. S. Firch and V. W. Pherson, recently completed a study at Purdue to determine a least-cost system of canned meat distribution.<sup>8</sup> The amount of production and product mix at each of the operating plants, the number and location of warehouse facilities, and the size and location of market outlets were all noted. Alternative distribution cost patterns were budgeted. Information on inventory levels and total warehousing costs including taxes on inventory were added. A linear programming transportation model was used to estimate the least cost warehousing and distribution pattern.

An important by-product of the study was a new evaluation of the impact of local tax burden on optimum warehouse location. Other problems which have been solved include least cost input and product-mix combinations, maximum profit production locations, and optimum levels of inventory accumulation.

The systematic analysis of plant location is comparatively recent. Its development has occurred almost entirely within the last forty years. The growing interest in area development has given additional emphasis to the problem of plant location, which previously stemmed primarily from a concern with the location problems faced by the individual firm. The evolution and application of new analytical techniques has permitted workers in both areas of interest to provide results useful to themselves and to each other.

<sup>7</sup> For a complete discussion of the use of new techniques in regional analysis see W. Isard, *Methods of Regional Analysis*, M. I. T. Press and Wiley, 1960.

<sup>8</sup> See R. S. Firch, M. S. Thesis, *Optimum Warehouse Location, A Problem in Non-Linear Programming*; and V. W. Pherson and R. S. Firch "A Procedure for Determining Optimum Warehouse Location", S. B. 760, December 1960, Purdue University Agricultural Experiment Station.



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# GAS UTILITY PROGRAMS FOR AREA GROWTH

ID's second survey of area and community development programs of gas companies shows broadened concepts and stronger service to the site-seeker. The summary of questionnaires begins on page 66.

Gas companies are trying their hand at practically all of the recognized methods of serving industries interested in their areas. Some offer the whole gamut of services, while others concentrate their efforts on those services they are best qualified to perform and draw on other development groups in their area for other services.

The two services most frequently mentioned in replies to our questionnaire are an interesting pair. One is participation in long-term community improvement programs and the other is conducting specific site studies for individual prospects; these are coded "K" and "H", respectively, in the lists of services offered by each gas company. Note that the first is an indirect service to all industry in the community—existing or prospective—whereas the second is a specific, direct service to an individual company.

Informational services loom large in the activities of gas companies engaged in area development. Out of 34 detailed replies, 21 companies specify that they conduct or assemble research studies dealing with their service area.

Subject files are maintained by 20 companies, the most common subjects being power and fuel—obviously—, climate, transportation,

water and waste disposal, legislation and taxes, and labor availability. Almost the same group of companies also maintain files for individual communities in their service area, and most of these are prepared to assemble information on a group of communities in comparable form.

Eighteen companies also maintain files on individual sites, and eleven actually own or share in ownership of industrial sites, while five companies are willing to offer assistance in the design and layout of new plants.

Specific community activities of gas companies of great value to industry are aid in formulating and carrying out land use planning and zoning (17 replies), aid in setting up local industrial development financing corporations (14 replies) and aid in urban redevelopment programs (13 replies).

A large majority of the companies engage in the promotion of their areas, largely through direct mail distribution of survey materials or by national advertising.

In addition to the indirect aid in financing new plants through community development foundations referred to above, six of the responding companies are prepared to offer financial aid in other ways, perhaps directly.

Many gas distribution companies are also or even primarily suppliers of electric power, and these companies have added impetus to take part in area development activities. Generally speaking, they have been longer in the field, and some of them—such as Connecticut Light and Power, Niagara Mohawk and Pacific Gas and Electric—are among the most active.

Both gas transmission and gas distribution companies are engaged in area development work, and among the leaders are Northern Natural Gas, and Southern Union Gas, which are involved in both transmission and distribution and production as well.

Since gas transmission companies in many cases have one main trunk line running for more than a thousand miles, the areas they serve are apt to be long narrow belts crossing many states, whereas distribution companies usually have one or more relatively compact areas.

Transmission companies often collaborate with their distributing utility customers in development activities affecting terminal areas but they also seek out potentially large users of gas near the course of their trunk lines or near compressor stations.

## EFFECTIVE SUPPORT TO AREA DEVELOPMENT

Mr. Potter points out the rationale behind the drive on the part of gas companies to make ready for new industry and expansions of present industries in their areas.

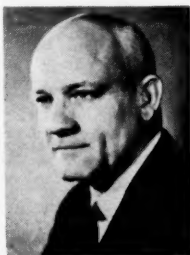
*By Lester T. Potter, President  
The American Gas Association*

The goal is plainly stated for all to see: The gas company is "to encourage and contribute to the sound growth of communities served." To achieve this goal, "each company is to give effective support to sound area development programs, especially the establishment of new industries."

These words appear in the American Gas Association's Gas Industry Development Committee report, which includes a statement of gas industry purpose and a summary of short-range industry and company goals.

Incorporation of these specific recommendations reflects the present and anticipated significance of area development programs in gas industry thinking. It reflects, too, our mounting recognition of a new competitive struggle which has become increasingly intensive during the past 15 years—the battle for economic and community levels, waged not only by business and government but by hybrid teams comprised of both.

*(Continued on Page 62)*



Currently the president of both the American Gas Association and his own company is Lester T. Potter of Lone Star Gas in Dallas. He has played a leading role in formulating the Association's new approach to area development.

## THE GAS INDUSTRY'S STAKE IN AREA GROWTH

Mr. Walton shows the awareness of a leading gas company that industrial patterns are not static and that growth industries come into an area on the basis of careful plans.

*By G. R. Walton, Past Chairman  
H.G.H. Task Force on Industrial Development*

Today, American industry is on the move as never before. Throughout the length and breadth of this nation, cities and villages are constantly being scouted by the representatives of potential new industries and business firms. The trek to medium and small towns seems to be accelerating.

The pattern of the gas utility and pipeline industry now is one of growth and expansion. But as long as our distribution company prosperity and growth rates are perpetually linked to the number of customers we serve, it follows that we shall be only as big or as small as the community or area on our lines. We will expand and thrive so long as we attract new customers to our service areas and sell more gas to existing customers.

Gas utilities obviously have—and will continue to have—both a major interest and a vital stake in the industrial growth and health of the areas they serve.

The presence of a factory of almost any sort means a great deal to the local gas company. Of primary interest to the gas utility are the actual and potential gas requirements of the industry

*(Continued on Page 63)*



Past chairman of the American Gas Association's Industrial and Commercial Task Force on Area Development is G. R. Walton, Senior Sales Engineer of the Houston Pipe Line Company in Houston.

# 5 IMPORTANT PLANT LOCATION SERVICES FREE



## JUST ASK THE MAN FROM THE NORTHERN PLAINS

A full scope of location services are offered to you by the professional location technicians on the area development staff at Northern Natural Gas Company. Special investigations will be conducted without obligation to meet your requirements.

**PLANT SITE EVALUATIONS** — The whole spectrum of location factors — from business environment to plant site selection — is analyzed in these complete evaluations.

**ECONOMIC INVESTIGATIONS** — Dependable information is provided, on a confidential basis, in such problem areas as manpower, resources, community appraisals and similar location considerations.

**MARKET STUDIES** — Your potential in the region is gauged by a thorough analysis of competitive situations, consumer characteristics, distribution patterns and market trends.

**FINANCING SOURCES** — The Man from the Northern Plains can draw on an intimate knowledge of community financing groups, as well as private financial institutions in this area.

**SOURCES OF SUPPLY** — Through Northern's Facilities Register, an exclusive method of indexing the Northern Plains' production facilities, dependable contractor and supplier capabilities are selected.

### NORTHERN NATURAL GAS COMPANY

General Offices: Omaha, Nebr.

For full information, write or call collect Randall T. Klemme, Vice President, Northern Natural Gas Company, Omaha, Nebraska.



## POTTER

(Continued from Page 61)

By any measure, the area development business today is big business. This large, sprawling, fast-growing area development industry embraces some 14,000 government, quasi-government and business organizations. They spend about a quarter of a billion dollars a year to attract industry to their geographical spheres of influence. Among them are some 250 gas and electric companies which channel approximately \$10 million annually into programs for area and industrial development.

If the gas company's underlying reason for becoming interested in area development ever was a question, that day is long past. Success in marketing their services depends almost entirely upon the economic health of the territories they serve, and they prosper only to the degree that their areas prosper. While this would appear to be reason enough for utility interest, it is but one factor. At least four others come immediately to mind.

First, the gas utility has a civic responsibility as a citizen to do all it can to support and stimulate the orderly growth of the community or communities it serves. Fulfilling this role of good citizenship is not lacking in public relations rewards.

Second, the gas utility has a very real stake in its community's orderly development, particularly from the standpoint of utility cost of service. Communities which grow in a planned and orderly manner require considerably less utility investment than those which spring up and spread out haphazardly.

Third, the gas utility has a direct interest in any steps directed toward broadening and deepening the economic bases of the communities it serves. The introduction and growth of industrial or business activity in a geographical area once characterized by declining tax valuations not only broadens and deepens that area's economic and tax bases but strengthens the capacity for return on investments made by the utility.

Fourth, area development holds the potential for positively increasing a gas-served community's employment opportunities or, barring this, stemming the decline of employment. It is axiomatic that as

population and employment opportunities increase, so gas sales will grow. Conversely, and in spite of vigorous selling campaigns, gas sales will slow down or actually decline with decelerated population expansion and fewer job opportunities.

So, in the final analysis, it all boils down to this: The gas utility can be one of the best-managed in the industry, with first-class facilities and adequate sources of gas supply. Yet if this company serves an area that is deteriorating or sliding downhill, the company will either go broke or be badly bent. On the other hand, an aggressive, well-managed gas company and a virile, growing area represent a fine combination for success.

## Expansion Vs. New Plants

The wooing and winning of a new industry from "outside" packs the dramatic wallop that commands community attention and garners the biggest headlines. The fact that the local industrial development team brings home the big trophy has tremendous morale value in the community, not to mention its publicity value elsewhere among other industrial firms considering plant relocation or branch plant location.

But industrial development, like charity, may often begin at home. Dr. Klemme, in an address at A.G.A.'s 1960 General Management Section Conference, cited an example in an Iowa community of 30,000 population served by one of Northern Natural's utility customer companies.

While the utility had acquired no new industries during 1959, many new homes had been built, school facilities had been expanded, and new service and trade establishments had appeared in the community. Close examination of the community revealed that about five major companies there had added some 450 new employees over a period of several years.

"The expansions which have been undertaken by each of these firms, while not going without notice, certainly would not have created the sensation which an outside firm employing 450 people would create in the community," Dr. Klemme observed. "Yet this substantial growth is requiring new jobs along the

(Continued on Page 64)



(Continued from Page 61)

itself, requirements that can range from nominal amounts for comfort heating to the vast quantities needed for heating and processing by the metallurgical, chemical, ceramic, food processing and textile industries.

What does a small industry mean to the gas company in terms of direct and indirect gas sales? We wondered ourselves, so we recently had our Distribution Department develop impact data on a hypothetical plant of 100 employees and annual gas requirement of 21 million cubic feet.

When we added together the annual gas requirements for office heating and cooling (computed at commercial gas rates), plus gas for the homes of 75 families, a school and nearly a dozen other types of service and trade establishments which would be needed by a working force of 100 employees, we found this: Our hypothetical 21 million foot customer had actually generated gas sales to the tune of 40 million cubic feet per year, half of which was higher-priced non-industrial gas. In a small town, this could well spell the difference between profit and loss for the local gas company.

The industrial plant ideally located today may be ill-placed 20 or 10 or even five years from now because of these population shifts or because of changes in the value of the dollar, increased costs of labor, raw materials or transportation, or any of a host of other factors. As a result, thousands of industries and businesses eventually must relocate to survive or expand. Furthermore, the requirements of each company are different, thus precluding easy or quick solution to its relocation problem.

When a company decides to consider a new location, the initial work is done in its own offices. This generally consists of a study of sources of the company's raw materials and markets, together with such factors as transportation and labor requirements.

Next, one or more "scouts" examine locations that seem to hold the most promise. Sometimes these scouts may be members of engineering firms hired by the company, but usually they are technical men

from the company's engineering or manufacturing departments.

The scout's job is to study the areas under consideration, get the facts the company requires, and write realistic, cold-blooded reports. His investigation may take from a week to a month, and the most thorough scout will not be satisfied until he has talked with the local water superintendent, sewage superintendent, tax assessor, railroad traffic manager, utility sales managers, one or more realtors, a contractor or construction company, a Weather Bureau man and representatives of raw material suppliers.

In a community where there is an industrial team or development group working constantly to attract new industry, the scout can get practically all the data he needs accurately and completely in a few hours, and in confidence if he so desires. The necessary members of the team can be assembled quickly for conferences with the scout, and the scout may select specialists in the topics he wants to discuss.

In the industrial development team or promotion group, the gas company's industrial sales manager or industrial engineer is a key figure because his regular day-to-day job places a wealth of local knowledge at his command.

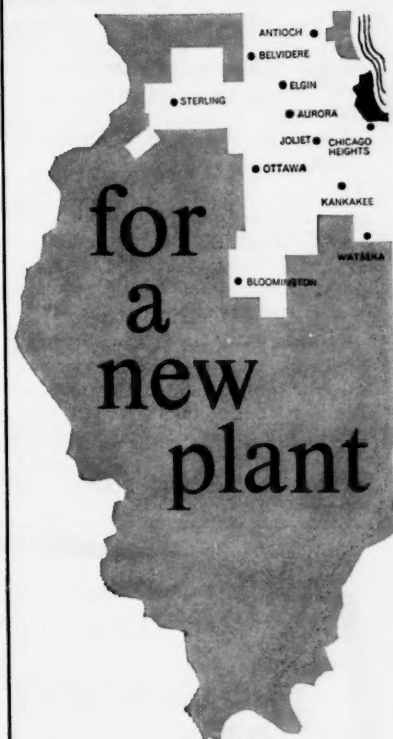
Finding prospective new industries for a community is a job in itself, and there are literally thousands of people running around the country trying to do just that. What types of prospects should be sought?

Generally speaking, however, the prize should be worthy of the race. Sound, progressive industries with promise of continued stability and steady growth should be seriously pursued. Conversely, companies characterized by histories of chronic labor strife should rank near the bottom of any prospect list.

While booming industries often can be lured, it might be borne in mind that booms have a nasty habit of passing, and plants have been known to shut down or slow down shortly thereafter. And when they do, the community facilities require by their working forces often are left high and dry, with nothing but an unpaid mortgage as a reminder of the palmy days. Better to have a solid, permanent industry of 500

(Continued on Page 64)

# right place



Why are more and more industries choosing Northern Illinois for new plant locations?

The answer is clear and simple:

**Ample gas supplies are now available to all forms of industry, for both space heating and processing.**

If you are considering a new plant site, it will pay you to investigate the many advantages of this area.

We'll be pleased to assist you in locating. Write: Harold J. Roth, Manager, Industrial Development, Northern Illinois Gas Company, 615 Eastern Avenue, Bellwood, Ill.

Service  
around the clock



(Continued from Page 62)

main street, providing opportunities for more doctors, more lawyers, more professional people, more schoolteachers; yes, and for more churches and more recreational facilities."

As the new picture of gas industry area development emerges, it becomes increasingly apparent that area development programs are most effective when they are planned and undertaken at the local level. Conditions and needs vary from area to area, and no two communities can be considered identical.

At the national gas industry level, we view our role as one concerned primarily with stimulating and supporting member company thinking and action in the growing field of area development.

At the 1962 Area Development Workshop, to be sponsored by A.G.A.'s Industrial and Commercial Gas Section, top experts will present their newest ideas and outlines of case experiences with an eye toward establishment of more gas company area development de-

partments and more active utility participation in existing area development programs.

Even more immediate, however, is the Association's new effort to encourage sound and effective member company programs directed toward achievement of the area development goal, as well as all other short-term goals recently outlined by the Gas Industry Development Committee. Responsibility for translation of these industry goals into guideposts for the gas company, and activation of programs best assuring their achievement, rests squarely with the executives of each company.

Whether we view the narrower field of area development or the broad field of total gas industry development, the industry's advancement is, as always, the sum total of the progress of its members. Only complete mobilization will take the industry from where it now is to where it must go — and mobilization at the company level must include the fullest exploration of the potential for greater individual company growth through sound area development.

(Continued from Page 63)

than a boom industry that will employ 1,000 or 5,000 today but no one three to five years from now.

As programs for industrial development and promotion are launched and carried out, care should be continually exercised to insure that the program sells what the prospect is most interested in buying. A recent study of 800 firms shows, for example, that development groups may be wasting time and money if their pitches are largely based on their area's climatic advantages or the availability of inexpensive plant sites.

Leading the list of 18 major reasons given by these firms for choice of their present location were availability of labor, convenience to markets, lower labor costs, availability of buildings or other property, and availability of raw materials. Small numbers of respondents to the poll mentioned such reasons as local cooperativeness, less unionization, transportation costs and facilities, and favorable tax structure. Only about 1 percent mentioned plentiful water supply as a major reason for locating in their new areas.

While I would not rule out the possibility that a survey of 800 other companies elsewhere might produce a totally different alignment of major reasons for plant location, such studies serve primarily to point up the impracticability of trying to apply any one magic formula in bidding for new industry through industrial development programs. The most consistent element of industrial promotion seems to be its lack of consistency.

But one overriding conviction does become solidly entrenched after any careful study of case histories dealing with gas company participation in industrial development programs. That is the firm and unshakable belief that the rewards certainly are well worth the effort expended.

The success of scores of gas companies and combination gas and electric utilities now active in industrial promotion and area development strongly suggest that such activities may hold a major key to continued utility growth and prosperity in an age of increasingly intensive competition. They may not be either the best key or the only key that fits — but they work.



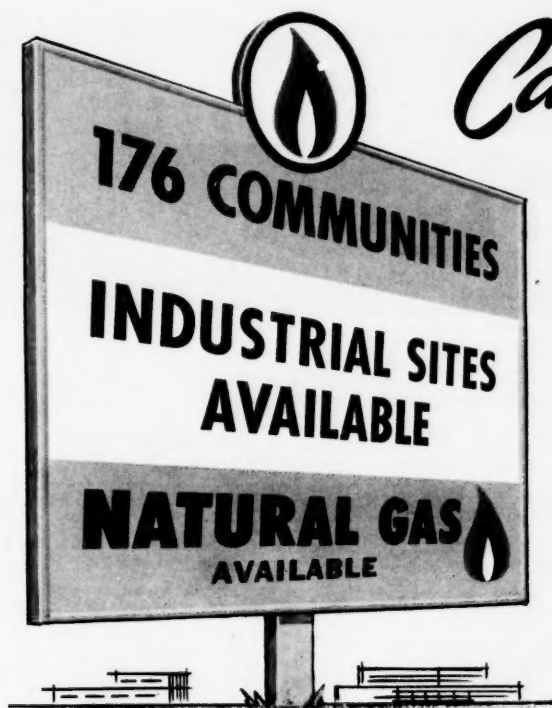
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Fair weather or foul...  
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Department 1918 First Avenue North,  
Birmingham 3, Alabama

**ALABAMA**  
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# Call Consumers'!

When you are looking for an industrial site for your plant, warehouse or branch office, call Consumers'!

You will receive immediately the vital information you need to help you make a decision—site, roads, railroads, housing, water, natural gas, allied industries, supply sources and all the other services and facilities you will require.

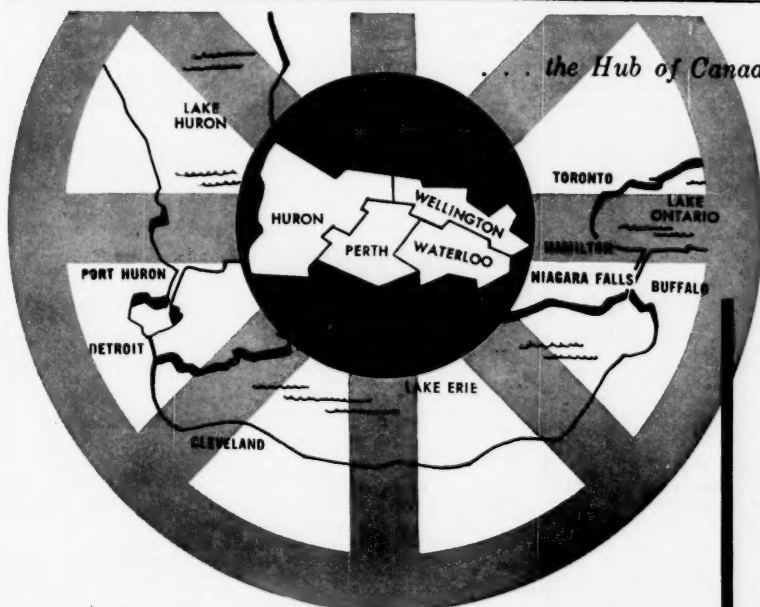
For complete information on more than seventy (70) communities and sites in Ontario, the heart of Canada's largest and fastest growing industrial area, call—

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## MID-WESTERN ONTARIO DEVELOPMENT ASSOCIATION

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A NON-PROFIT ENTERPRISE



# SITE-SEEKER'S GUIDE TO GAS UTILITIES

Following is ID's second annual survey of area development services offered by gas companies to manufacturers and others investigating new site possibilities. Replies to questionnaires form the basis for the information given for listed companies; those marked with an asterisk (\*) are derived from 1960 replies where later information was not submitted.

The code used to designate area development services is as follows:

- (A) Conduct or assemble research studies on the service area.
- (B) Maintain complete files on the following location factors for the service area:
  - 1 Markets
  - 2 Labor
  - 3 Raw materials
  - 4 Power and fuel
  - 5 Water and waste
  - 6 Climate
  - 7 Transportation
  - 8 Financing
  - 9 Legislation and taxes
  - 10 Civic characteristics
- (C) Maintain files of the above information for individual communities in the service area.
- (D) Assemble above information on communities in comparable form such as an audit or survey.
- (E) Serve as an Area Registry for the In-

ternational Community Audit Registry.

- (F) Maintain files on available industrial sites, covering items such as cost, ownership, zoning, utility connections, etc.
- (G) Own or share in ownership of developed or undeveloped industrial sites.
- (H) Conduct specific site studies.
- (I) Offer assistance in the design and layout of new plants.
- (J) Provide financial assistance to new or expanding plants either directly or indirectly.
- (K) Participate in long-term community improvement programs.
- (L) Aid communities in formulating and carrying out land use planning and zoning programs.
- (M) Assist communities in setting up urban redevelopment programs.
- (N) Help communities set up local foundations or development corporations.
- (O) Promotion of area and communities in it through:
  - 1 National advertising.
  - 2 Direct mail distribution of surveys and brochures.
  - 3 Production or distribution of motion pictures dealing with community development.
  - 4 Sponsorship of workshops and orientation sessions.

## ALABAMA

**Alabama Gas Corporation**, 1918 First Avenue North, Birmingham 3, Alabama; Clarence H. Cook, Jr., Manager, Industrial Development Department (2 full-time development personnel and 10 area managers). This privately owned utility distributes 59 billion cubic feet per year to central and north central Alabama. It has 238,700 residential customers, 21,500 commercial and 345 industrial customers.

A, B2 through B10, C, D, 01 through 010.

## ARIZONA

**Arizona Public Service Company**,\* 501 South 3rd Avenue, Phoenix, Arizona. A. V. K. Babcock, Manager, Area Development Department. Privately owned, it distributes 22 billion cubic feet per year to consumers throughout 40,000 square miles to over 200 communities in 10 counties. It has 166,584 residential, 15,705 commercial and 633 industrial customers.

**Tucson Gas, Electric Light and Power Company**,\* 35 West Pennington, Tucson, Arizona. Privately owned, the company distributes 10 billion cubic feet per year to consumers in the market area of Tucson. It has 56,343 residential, 5,794 commercial, and 21 industrial customers.

## ARKANSAS

**Arkansas-Missouri Power Company**,\* (Associated Natural Gas Company—Subsidiary), Blytheville, Arkansas. John Watson, Administrative Assistant. This privately owned firm distributes 7.2 billion cubic feet per year to consumers to Northeastern Arkansas and Southeastern Missouri. It has 20,993 residential, 3398 commercial and 316 industrial customers.

**Arkansas Western Gas Company**,\* 28 East Center Street, Fayetteville, Arkansas. Leonard B. Kendall, Director of Indus-

trial Development. This privately owned utility distributes 7.4 billion cubic feet per year to consumers. It has 26,855 residential, 6146 commercial and 41 industrial customers.

## CALIFORNIA

**Long Beach Gas Department**,\* 215 W. Broadway, Long Beach 2, California. This publicly owned utility distributes 80 million cubic feet per day to the City of Long Beach. It has 106,800 residential, 955 commercial and 68 industrial customers.

**Pacific Gas & Electric Company**, 245 Market Street, San Francisco 6, California; John S. Walsh, Manager, Area Development (3 full-time personnel, 55 part-time). This privately owned utility distributes 370 billion cubic feet per year to consumers in northern and central California. It has 1,560,000 residential customers, 123,175 commercial and 3267 industrial customers.

A, B1 through B10, C, D, F, H, K, L, M, N, 02, 03, 04.

**Southern Counties Gas Company of California**, 720 West Eighth Street, Los Angeles, California; R. K. Von Der Lohe, Manager, Commercial and Industrial Sales. Privately owned, this company distributes 73% of its gas to consumers in Southern California, transmitting the remainder to other utilities. It purchases all its gas. It has 713,000 residential customers, 47,000 commercial and 2,500 industrial customers.

C, K.

## COLORADO

**Public Service Company of Colorado**,\* 900 Fifteenth Street, Denver, Colorado. Gordon Parker, Director of Area Development. This privately owned utility distributes 111 billion cubic feet per year to consumers in Denver, Boulder, Fort Collins, Longmont, Loveland, Grand Junction

and Brush, Colorado. It has 239,664 residential, 31,409 commercial and 256 industrial customers.

## CONNECTICUT

**Connecticut Light & Power Company**, Selden Street, Berlin, Connecticut. Robert P. Less, Area Development Manager. This privately owned utility, recently extended by acquisition of the Housatonic Public Service Company, produces 400 million cubic feet of gas per year and purchases the remainder; it distributes 17 billion cubic feet to consumers in a 964-square-mile Connecticut area. It has 101,494 residential gas customers, 6,793 commercial and 777 industrial customers.

A, B1 through B10, C, D, E, F, G, H, I, J, K, L, M, N, 03, 04.

**Hartford Electric Light Company**,\* Cumberland Road, Wethersfield, Connecticut. Edward R. Cole, Area Development Director. This privately owned utility distributes 2.8 billion cubic feet per year to consumers around New London, Stamford and Torrington. It has 30,146 residential, 2,683 commercial and 226 industrial customers.

## DELAWARE

**Delaware Power and Light Company**,\* 600 Market Street, Wilmington, Delaware. W. A. F. Pyle, Manager of Power Sales. This privately owned utility distributes 5.7 billion cubic feet to consumers per year in Wilmington and suburbs. It has 55,759 residential, 2,347 commercial and 43 industrial customers.

## DISTRICT OF COLUMBIA

**Washington Gas Light Company**, 1100 H Street, N. W., Washington 5, D. C.; John H. W. Roper, Area Development Consultant (full-time, with part-time staff of 17). This privately owned utility produces 193 million cubic feet and distributes 47 billion cubic feet per year to consumers in the District of Columbia and the surrounding Virginia and Maryland areas. It has 367,394 residential customers, 33,550 commercial and industrial customers.

A, B1 through B10 (partial files), D, H, K, L, M, N, 01.

## FLORIDA

**Houston Corporation**,\* P. O. Box 10400, St. Petersburg, Florida. H. H. Phipps, Manager, Commercial and Industrial Sales. This privately owned utility has 50,000 residential, 5,000 commercial and 200 industrial customers throughout Jacksonville, Daytona Beach, Orlando, Lakeland, Triangle and Miami.

**Peoples Gas System, Incorporated**, 215 Tampa Street, P. O. Box 2562, Tampa, Florida; J. W. Owen, Division Manager. This privately owned utility distributes 18 million therms per year to consumers in Greater Tampa. It has 23,000 residential customers, 2,000 commercial and 30 industrial customers.

## GEORGIA

**Atlanta Gas Light Company**, 243 Peachtree Street, P. O. Box 4569, Atlanta 2; Orbie Eostick, Manager, Commercial and Industrial Sales, (also three staff members part-time). This privately owned utility distributes 1.2 billion therms per year in Georgia. It has 346,000 residential, 30,000 commercial and 2,800 industrial customers.

## ILLINOIS

**Central Illinois Electric and Gas Company**,\* 303 North Main Street, Rockford, Illinois. Sheldon A. Coxhead, Sales Manager. This privately owned utility has 51,090 residential, 2,301 commercial and



## GAS UTILITIES

220 industrial customers throughout the Rockford-Loves Park area and the City of Freeport, Illinois.

**Central Illinois Light Company,\*** 300 Liberty Street, Peoria, Illinois. Mark B. Townsend, Area Development Director. This privately owned utility distributes 135 million cubic feet per day to consumers in 84 communities. It has 95,469 residential, 7,935 commercial and 108 industrial customers.

**Illinois Power Company,\*** 500 South 27th Street, Decatur, Illinois. C. W. McCaulla, Industrial Development Engineer. This privately owned utility distributes 187 million cubic feet per day to consumers in sections of northern, central and southern Illinois. It has 172,597 residential, 18,291 commercial and 196 industrial customers. **Northern Illinois Gas Company,** 615 Eastern Avenue, Bellwood, Illinois; Harold J. Roth, Manager, Area Industrial Development (3 full-time personnel, 17 district superintendents). This privately owned utility distributes 1.7 billion therms per year to the northern one-third of Illinois, excepting Chicago, Rockford and Waukegan areas. It sells 5.7 million therms to other utilities. It produces 878 thousand therms per year and purchases all of the remainder. Its customers total 678,387 residential, 33,564 commercial and 4,230 industrial.

A, H, K, L, 01, 03, 04.

**The Peoples Gas Light and Coke Company,\*** 122 South Michigan Avenue, Chicago, Illinois. Jack H. Cornelius, Manager of Community Relations. This privately owned utility distributes 1.6 billion therms per year to Chicago consumers, and has 938,748 residential, 40,196 commercial and 7,355 industrial customers.

### INDIANA

**Citizens Gas & Coke Utility,** 2020 North Meridian Street, Indianapolis, Indiana. This publicly owned utility distributes 22 billion cubic feet annually to consumers in Marion County, of which 3.6 billion cubic feet is produced and the remainder purchased from transmission companies. It has 153,234 residential customers, 8,096

commercial and 443 industrial customers. **Indiana Gas & Water Company, Incorporated,** 1630 North Meridian Street, Indianapolis 2, Indiana; Fred W. Dopke, First Vice President. This privately owned utility distributes 31 billion cubic feet to customers annually in central and south central Indiana, of which 65 million cubic feet is produced by the company and the remainder is purchased from transmission companies. The company has 99,730 residential, 12,255 commercial and 235 industrial customers.

A, B4, B5, C, D (on specific request), G, J, K, N.

**Southern Indiana Gas & Electric Company,** 20-24 North West Fourth Street, Evansville 3, Indiana; A. B. Brown, President. This privately owned company distributes gas in the areas of Evansville, Mt. Vernon and Newburgh, Indiana. It has 41,812 residential customers, 3,161 commercial and 175 industrial customers.

A, B1 through B10, C, F, G, H, J, K, L, M, N, 01, 02, 04.

### IOWA

**Iowa Electric Light and Power Company,\*** Cedar Rapids, Iowa. L. A. Talbott, Administrative Assistant to Vice President of Commercial and Sales Department. This privately owned utility distributes 27 billion cubic feet per year to Iowa, Nebraska, Colorado and Minnesota. It has 57,600 residential, 7,103 commercial, and 137 industrial customers.

**Iowa-Illinois Gas and Electric Company,\*** 206 East Second Street, Davenport, Iowa. Lewis H. Day, Director, Area Development. This privately owned utility distributes 395 million therms per year to consumers in Rock Island and Moline, Illinois and Davenport, Iowa City, Fort Dodge, Cedar Rapids and Ottumwa, Iowa. It has 121,687 residential, 10,672 commercial and 218 industrial customers.

**Iowa Power and Light Company,\*** 823 Walnut, Des Moines, Iowa. C. E. Worlan, Manager, Area Development Division. This privately owned utility distributes 27 billion cubic feet of gas annually to consumers in 21 counties of central and

southwestern Iowa. It has 81,400 residential, 8,600 commercial and 360 industrial customers.

**Iowa Public Service Company,** 502 Sixth Street, Sioux City, Iowa; Scott Phelps, Special Representative (30 part-time development personnel). Privately owned, this company purchases 32 billion cubic feet annually from Northern Natural Gas Company and produces 145 million cubic feet. It distributes 21 billion cubic feet per year to consumers in the northern third of Iowa and in southwestern South Dakota. Customers total 74,362 residential, 11,439 commercial and 330 industrial.

B4, B9, B10, D, F, G, K, M, N, 01, 03.

### KANSAS

**The Kansas Power & Light Company,** 800 Kansas Avenue, Topeka, Kansas; W. L. Perdue, Area Development & Director of Publicity. This privately owned utility transmits 1.5 billion cubic feet of purchased gas annually to other utilities and distributes 53 billion cubic feet of purchased gas to consumers in northeastern and central Kansas. Its customers total 85,551 residential, 12,200 commercial and 414 industrial.

### KENTUCKY

**Columbia Gas of Kentucky, Inc.,** Lexington Division, P. O. Box 241, Lexington, Kentucky; W. A. Wood, Manager, Ashland Division, P. O. Box 1030, Ashland, Kentucky; B. E. Brown, Manager. This privately owned utility distributes 19 billion cubic feet per year to consumers in central and eastern Kentucky. It has 69,624 residential, 7,242 commercial and 105 industrial customers.

G, H, K, 01, 02, 03.

**Louisville Gas and Electric Company,\*** 311 W. Chestnut Street, Louisville, Kentucky. H. Curtis Craig. This privately owned utility distributes 38 billion cubic feet per year to consumers in the Louisville Area, and transmits 305 million cubic feet per year to other utilities. It has 151,800 residential, 12,792 commercial and 166 industrial customers.

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## GAS UTILITIES

**Texas Gas Transmission Corporation,\*** P. O. Box 577, Owensboro, Kentucky. Glover Cary, Manager of Industrial Development. This privately owned utility transmits about 379 billion cubic feet annually of which 88 per cent goes to other utilities and 12 per cent direct to 14 industrial customers.

**Western Kentucky Gas Company,** 608 Frederica Street, Owensboro, Kentucky; William H. Neal, Director, Industrial Development (2 full-time and 1 part-time development employees). This privately owned utility distributes 19 billion cubic feet per year to consumers in central and western Kentucky; it produces 414 million cubic feet of this amount, and purchases the remainder. It has 70,946 residential customers, 8,960 commercial and 141 industrial customers.

A, B2, B4 through B10, C, F, H, I, J, K, L, M, N, 02 through 04.

### LOUISIANA

**New Orleans Public Service Incorporated,\*** 317 Baronne Street, New Orleans, Louisiana. J. F. Morton, Industrial Sales Manager. This privately owned utility distributes 28 billion cubic feet per year to the City of New Orleans. It has 157,954 residential, 12,092 commercial, and 616 industrial customers.

B, C, D, E, F, G, I, J, M.

**United Gas Corporation and United Gas Pipe Line Company,\*** P. O. Box 1407, Shreveport, Louisiana. V. S. Brennan, Director of Sales and Rates. This privately owned utility transmits 598 billion cubic feet to other utilities and distributes 1.4 trillion cubic feet per year to consumers in Gulf South (Texas, Louisiana, Mississippi, Alabama, and Florida). It has 515,702 residential, 60,100 commercial and 2,361 industrial customers.

### MARYLAND

**Baltimore Gas & Electric Company,** Lexington Building, Lexington & Liberty Streets, Baltimore 3, Maryland; Robert J. George, Industrial Development Engineer. This privately owned utility distributes 40 billion cubic feet per year to mid-Maryland consumers, including Metropolitan Baltimore. It produces 1 billion cubic feet and purchases the remainder. The company's customers total 369,588 residential, 25,535 commercial and 1,221 industrial.

B2 through B9, C, F, H, K, L, 01, 02.

**Columbia Gas of Maryland, Inc.** 800 Union Trust Building, Pittsburgh 19, Pennsylvania. James N. Kennedy, Industrial Sales Manager. This privately owned utility distributes 6 billion cubic feet per year to consumers. It has 19,744 residential, 1,589 commercial and 7 industrial customers.

H, 01, 02, 03.

**Cumberland & Allegheny Gas Company,** 800 Union Trust Building, Pittsburgh 19, Pennsylvania. James N. Kennedy, Industrial Sales Manager. This privately owned utility distributes 3 billion cubic feet per year to consumers in western Maryland and northeastern West Virginia. It has 14,776 residential, 1,813 commercial and 3 industrial customers.

H, 01, 02, 03.

### MASSACHUSETTS

**The Berkshire Gas Company,** 20 Elm Street, Pittsfield, Massachusetts; Joseph T. Kelley, Vice President (4 part-time development personnel). This privately owned utility distributes 2.3 billion cubic feet per year to consumers in Berkshire and Franklin Counties, producing 30 million cubic feet of that amount. It has 22,994 residential customers, 1,641 commercial and 150 industrial customers.

K, L, M, N, 02.

**Haverhill Gas Company,\*** 63 Merrimack Street, Haverhill, Massachusetts. H. L. Hall, General Sales Manager. This privately owned utility distributes 1.8 billion cubic feet per year to consumers to 17 cities and towns in northeastern Massachusetts. It has 23,190 residential, 1,296 commercial and 390 industrial customers.

**New England Gas & Electric System,\*** 727 Massachusetts Avenue, Cambridge, Massachusetts. M. P. Griffith, Assistant Vice President. This privately owned utility distributes 15 billion cubic feet per year to consumers in the Worcester, Cambridge, Plymouth and New Bedford areas. It has 161,000 residential, 9,000 commercial and

1,000 industrial customers.

**Worcester Gas Light Company,** Worcester, Massachusetts; Harry Melden, Manager, Industrial Sales (3 part-time development personnel). This privately owned utility distributes 9.4 billion cubic feet per year to consumers in 30 Massachusetts communities, producing 400 million cubic feet and purchasing the remainder of that total distributed amount. Its customers total 73,873 residential, 4,369 commercial and 528 industrial.

A, C, K, L.

### MICHIGAN

**Battle Creek Gas Company,\*** 26 E. Michigan Avenue, Battle Creek, Michigan. D. M. Eckman, Vice President & General Manager. This privately owned utility distributes 47 billion therms per year to consumers in the Battle Creek area. It has 19,583 residential, 1,111 commercial and 36 industrial customers.

**Consumers Power Company,\*** 212 Michigan Avenue, West Jackson, Michigan. H. L. Brewer, Director of Area Development. This privately owned utility distributes 6.2 million cubic feet per day to consumers. It has a total of 514,451 residential, commercial and industrial customers.

**Michigan Consolidated Gas Company,** 415 Clifford Street, Detroit, Michigan; Robert L. Gage, Manager, Industrial Development Division (full-time staff of three). This privately owned utility distributes 210 billion cubic feet annually to customers in Detroit, Grand Rapids, Muskegon and central Michigan cities. Residential customers number 815,000, commercial and industrial customers total 55,000.

A, B1 through B10, C, D, F, J, K, L, M, N, 01, 02, 04.

**Michigan Gas & Electric Company,** 108 East Michigan Avenue, Three Rivers, Michigan; James E. Proffitt, General Sales Manager (six part-time industrial development personnel). This privately owned utility distributes six billion cubic feet per year of purchased gas to customers in southwestern Michigan. The company has 20,500 residential, 1,950 commercial and 100 industrial customers.

A, D, K.

### MINNESOTA

**Minneapolis Gas Company,** 739 Marquette Avenue, Minneapolis 2, Minnesota; Bert H. Roberts, Vice President, Area Development Department (5 full-time personnel). This private utility distributes 63 billion cubic feet per year to its consumers in Hennepin County, and of that amount 33 million cubic feet is produced by the company. It has 207,683 residential, 12,276 commercial and 885 industrial (1,226 interruptible) customers.

A, C, F, K, L, O (projected program).

**Minnesota Valley Natural Gas Company,\*** 315 South Minnesota Avenue, St. Peter, Minnesota. R. E. Crawford, Jr., Assistant to the Vice President. This privately owned utility distributes 11 billion cubic feet to consumers annually throughout south central and central Minnesota. It has 20,864 residential, 2,464 commercial, and 134 industrial customers.

### MISSISSIPPI

**The Union Gas Company,\*** P. O. Box 4647, Jackson 6, Mississippi. J. M. Walsh, General Manager. This privately owned utility distributes 1 billion cubic feet per year to N. E., N. W., Central, and S. W. Mississippi, E. Central Arkansas, and S. W. Alabama. It has 7,509 residential, 994 commercial, 16 industrial and 117 public authority customers.

### MISSOURI

**Laclede Gas Company,** 1017 Olive Street, St. Louis 1, Missouri; Charles A. Brown, Manager, Industrial Sales Division (13 part-time development personnel). The company distributes 100 billion cubic feet of purchased gas per year to consumers in the Greater St. Louis area. Residential customers number 366,569, commercial customers total 19,432 and industrial customers total 2,325.

### NEBRASKA

**Northern Natural Gas Company,** 2223 Dodge Street, Omaha 1, Nebraska; Perry F. Roys, Director, Area Development Department (9 full-time and 3 part-time

personnel). This privately owned utility distributes 75 billion cubic feet per year to consumers in Kansas, Nebraska, Iowa, Minnesota, South Dakota and Wisconsin; it transmits 357 billion cubic feet per year to other utilities. Its main trunk line totals 14,305 miles in length. A subsidiary produces 46 billion cubic feet, and the company purchases 484 billion cubic feet. It has 945,855 residential customers, and 94,207 commercial and industrial customers.

A, B1 through B10, C, D, F, G, H, I, K, L, M, N, 01 through 04.

### NEW JERSEY

**Elizabethtown Consolidated Gas Company,** 16 West Jersey Street, Elizabeth, New Jersey; Richard E. Crane, Manager, Industrial Sales. This privately owned utility company distributes 10 billion cubic feet of purchased gas per year to consumers in Union and Middlesex Counties. The main trunk line is 1,350 miles in length. The company has 138,812 residential customers, 5,438 commercial and 344 industrial customers.

**New Jersey Natural Gas Company,** 601 Bangs Avenue, Asbury Park, New Jersey; J. V. Richards, Manager, Planning and Development (3 part-time personnel). This privately owned utility distributes 11.5 billion cubic feet per year to consumers in Morris, Monmouth, Ocean and Cape May Counties. It produces 125 million cubic feet per year. It has 120,840 residential customers, 7,390 commercial, and 111 industrial customers.

A, F, H, K, L, 01, 02.

**South Jersey Gas Company,** 2001 Atlantic Avenue, Atlantic City, New Jersey; V. F. Stanton, Vice President (3 part-time development personnel). This private utility distributes 18 billion cubic feet per year to southern New Jersey consumers and transmits 1 billion cubic feet per year to other utilities. Its main trunk line measures 112 miles for transmission only. It has 76,986 residential customers, 7,428 commercial customers and 213 industrial customers. The company participates in the area development activities of a regional association, the Southern New Jersey Development Council.

### NEW YORK

**Central Hudson Gas & Electric Corporation,** South Road, Poughkeepsie, New York; Charles H. Adler, Industrial Development Director (3 full-time personnel). This privately owned utility distributes 3.6 billion cubic feet per year to consumers in the Beacon, Kingston, Newburgh and Poughkeepsie areas. It produces 8 million cubic feet and purchases the remainder. It has 38,200 residential customers, 2,700 commercial and 200 industrial customers.

A, B1 through B9, C, F, H, K, L, M, N.

**Columbia Gas of New York, Inc.** 800 Union Trust Building, Pittsburgh 19, Pennsylvania. James N. Kennedy, Industrial Sales Manager. This privately owned utility distributes 13 billion cubic feet per year to consumers in the Binghamton, Olean and Watkins Glen areas. It has 55,322 residential, 3,347 commercial and 99 industrial customers.

H, 01, 02, 03.

**Niagara Mohawk Power Corporation,\*** 300 Erie Boulevard West, Syracuse 2, New York. Richard F. Torrey, Director of Area Development. This privately owned utility transmits 794 billion cubic feet to other utilities and distributes 5 billion cubic feet per year to consumers in 21 cities, 143 towns and villages in 17 counties of Upstate New York. It has 326,277 residential, 23,423 commercial and 607 industrial customers.

**Panhandle Eastern Pipe Line Company,\*** 120 Broadway, New York 5, New York. Albert H. Hargreaves, Manager Industrial Development. This privately owned utility transmits 375 billion cubic feet to other utilities and distributes 62 billion cubic feet per year to consumers in Texas, Oklahoma, Kansas, Missouri, Illinois, Indiana, Ohio, Michigan, Louisiana, Tennessee, Mississippi, Kentucky and Ontario, Canada. It has 4 million customers in 1,500 communities.

**New York State Electric & Gas Corporation,\*** 62 Henry Street, Binghamton, New

## GAS UTILITIES

York. E. W. Bartley, Manager Industrial Development. This privately owned utility has 90,434 residential, 8,357 commercial and 328 industrial customers in 35% of Upstate New York area.

**Rochester Gas and Electric Corporation,\*** 89 East Avenue, Rochester 4, New York. Kendall B. Castle, Jr., Director of Industrial Development. This privately owned utility distributes 185 million therms per year to consumers in 892 square miles of 5 counties in the metropolitan area of Rochester. It has 144,690 residential, 8,558 commercial and 429 industrial customers.

### NORTH CAROLINA

**Public Service Company of North Carolina, Incorporated,\*** 170 West Franklin Avenue, Gastonia, North Carolina. Charles E. Ziegler, Executive Vice President. This privately owned utility transmits 1 million cubic feet per day to other utilities. It has 32,676 residential, 5,105 commercial and 425 industrial customers.

### OHIO

**The Cincinnati Gas & Electric Company** (and subsidiaries), 4th & Main Streets, Cincinnati 2, Ohio; James A. Wuenker, Manager, Industrial Development Department (4 full-time personnel). This privately owned utility distributes 77 billion cubic feet annually to consumers in southwestern Ohio and northern Kentucky, and transmits 4 billion cubic feet to other utilities. It purchases 86 billion cubic feet and produces 310 million cubic feet of gas. Its customers include 280,500 residential, 28,150 commercial and 875 industrial.

A, B1 through B10, C, F, G, H, K, L, M, N, O1, O2, O4.

**Dayton Power and Light Company,** 25 North Main Street, Dayton, Ohio. C. J. Fuhrmann, Industrial Developer. This privately owned utility distributes 47 billion cubic feet per year to consumers in a 6,100-square-mile area in west-central Ohio. It has 176,362 residential, 18,412 commercial and 631 industrial customers.

A, B, C, D, E, F, G, I, J, K, L, N, O, P. The **East Ohio Gas Company,** 1117 East 9th Street, Cleveland 14, Ohio; William R. Pringle, Secretary & Manager of Area Development (full-time staff of 2). This privately owned utility distributes 277 billion cubic feet per year to consumers in northeast Ohio. Its customers total 825,976.

A, B1, B3, B4, B6, B9, B10, C, D, F, H, I.

**Ohio Fuel Gas Company,** 99 North Front Street, Columbus, Ohio. M. E. White, Industrial Sales Manager. This privately owned utility distributes 232 billion cubic feet per year to consumers in southeastern, central and northwestern Ohio. It has 699,325 residential, 56,588 commercial and 1,790 industrial customers.

C, D, H, K, O1, O2, O3.

**Ohio Valley Gas Company,** 99 North Front Street, Columbus, Ohio. M. E. White, Industrial Sales Manager. This privately owned utility distributes 17 billion cubic feet per year to consumers in eastern and southern Ohio. It has 51,903 residential, 3,982 commercial and 72 industrial customers.

C, D, H, K, O1, O2, O3.

**Toledo Edison Company,** 420 Madison Avenue, Toledo 4, Ohio. Robert E. Johnson, Manager, Industrial Development Department. This privately owned utility distributes 754 million cubic feet to consumers per year within 2,500 square miles of northwestern Ohio. It has 3,262 residential, 379 commercial and 10 industrial customers.

### OKLAHOMA

**Oklahoma Natural Gas Company,** 62 South Boston Avenue, Tulsa, Oklahoma; Leonard W. Crump, Director, Industrial Sales (five part-time development personnel). This privately owned utility distributes 144 billion cubic feet per year to Oklahoma consumers. It produces 8 billion cubic feet per year and purchases the remainder. It has 355,729 residential customers, 35,649 commercial and 2,642 industrial customers.

G, K, N, O1

### PENNSYLVANIA

**Manufacturer's Light & Heat Company,** 800 Union Trust Building, Pittsburgh 19, Pennsylvania. James N. Kennedy, Industrial Sales Manager. This privately owned utility distributes 44 billion cubic feet to other

(Continued on Page 70)



## I. D. BRIEFS

**MILWAUKEE.** A new organization called the Division of Economic Development has been set up by the City of Milwaukee. The director is Arthur W. Else who was formerly administrative assistant to the mayor of the city, and the division has a five-man staff altogether. A \$1 industrial land fund has been made available to promote development in the area.

**WASHINGTON.** The U. S. Department of Commerce is conducting, through contracts to five private consulting firms, a series of studies on the factors influencing the location of new plants in selected growth industries. Victor Roterus, director of the Department's Office of Area Development, said the full range of location factors pertinent to each industry selected for study will be considered. The findings will be published in mid-Summer. The study of location factors in the fabricated plastics industry is being conducted by Ebasco; scientific instruments by Stanford Research Institute; electrical machinery by the Fantus Company; electronics by Arthur D. Little, Inc., and selected container industries by Galaxy, Inc.



San Diego's Mayor Charles C. Dial (second from left) receives the ID citation for his work and attention to industrial development activities from C. Rhodes MacBride, President of Convair Division, General Dynamics Corporation, who made the presentation on behalf of INDUSTRIAL DEVELOPMENT magazine. Watching the presentation are (left to right) Harold V. Pederson, industrial manager of the San Diego Chamber of Commerce; John Harter, director of industrial re-

search of the San Diego Chamber of Commerce; and Julius R. Jensen, industrial consultant of the City of San Diego.

**CHICAGO.** Ten states and the District of Columbia have adopted the Model Business Corporation Act, according to the Commerce Clearing House News Bureau. The ten states are Alaska, Colorado, Iowa, North Dakota, Oregon, Texas, Utah, Virginia, Wisconsin and Wyoming. Four other states have adopted some of the provisions of the Model Act: Alabama, Connecticut, Maryland and North Carolina.

The Model Act was prepared by the Committee on Corporation Laws of the American Bar Association after a careful study and is considered one of the best and most easily administered law governing the organization and operation of corporations.

**WASHINGTON.** The Office of Industrial Participation, designed to strengthen industry's participation in the U. S. atomic energy program, has been established by the U. S. Atomic Energy Commission. Ernest B. Tremmel, Special Assistant to Commissioner Robert E. Wilson, has been named director of the new office.

**WASHINGTON.** Robert F. Steadman has been appointed Economic Adjustment Advisor to the Department of Defense of the United States and will serve as a consultant to the department, particularly to aid in lessening the economic effects of projected changes in domestic military establishments. Mr. Steadman is vice president of the American Management Association and is now on leave from that position.

**PINE BLUFF, ARK.** Of interest to industrialists is the announcement that Varner Steel Products of Pine Bluff now has national distribution of its Varco Uniframe Buildings. These buildings are rigid frame structures designed for use in industrial and commercial applications, as well as on the farm.





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**METROPOLITAN ATLANTA** — Nine Industrial Districts offering planned sites of varying location, size, price. Services available: (a) optional, (c) (e) (g) (f) optional, (p) (r) (s) (t) (w). For data on these and other sites at Atlanta contact F. Wm. Broome (member, AIDC) Manager, Committee of 100 DeKalb County, P. O. Drawer 759, Atlanta 22, Ga. Telephone 378-3691.

#### Florida

Perini Industrial Park, located at West Palm Beach on the main line of Seaboard Railroad. Available services (a), (c), (e), (g), (f), (p), (r), (s), (t), (w) — Write — Paul F. Hrabko, P. O. Box 1071, W.P.B. Phone TE 3-4533.

#### Illinois

**ILLINOIS INDUSTRIAL VALLEY:** Cities of La Salle, Peru, Oglesby, Spring Valley, Ladd, DePue offer planned industrial sites. Excellent transportation via the Illinois River, 7 major railroads, numerous carriers. 2 U.S. Highways. Skilled workers. Power in abundance. Active ID organization to serve you. Robert Blomgren, Director, Box 446, La Salle, Illinois. Phone: CA. 3-0227. Services: (a) optional, (c), (e), (f) optional, (g), (p), (r), (s), (t), (w).

#### Iowa

**IOWA "MANUFACTURING MEADOWS"** — Clinton, Iowa (population 35,000). 138 miles west of Chicago on Mississippi River and Lincoln Highway (U. S. 30). 190 acres within city. Master plan by Skidmore, Owings & Merrill. Served by Chicago and North Western Railroad. Developed by Clinton Development Company, a civic-non-profit corporation. CHapel 2-4536. R. J. Stapleton, Managing Director. Services available: (a) (optional), (c), (e), (g), (f) (optional), (p), (r), (t), (w), restrictions.

**HIGHFIELD INDUSTRIAL DISTRICT** in Calgary, Canada's oil and natural gas centre. Industrial sites available in city-developed district for "package" price of \$6,750 an acre including pre-paid utilities. Services: (e), (g), (r), (s), (t), (w). For free industrial survey or other information contact K. S. Ford, Industrial Co-ordinator, City Hall, Calgary, Alberta, Canada.

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Stewart G. Neel, Manager

### GAS UTILITIES

(Continued from Page 69)

utilities and 92 billion cubic feet per year to consumers in western and southern Pennsylvania and the northern West Virginia panhandle. It has 235,402 residential, 20,958 commercial and 202 industrial customers.

H. 01, 02, 03.

**The Peoples Natural Gas Company**, 2 Gateway, Pittsburgh 22, Pennsylvania; Charles L. Yost, Manager, Industrial Development (3 full-time personnel). This privately owned utility distributes 98 billion cubic feet to consumers in the 15-county Pittsburgh area. It produces 12 billion cubic feet per year and purchases the remainder. Its customers total 256,016 residential, 15,851 commercial and 230 industrial.

**A. B. I. through B.9, D. F. G. H. K. L. 02. Philadelphia Electric Company**, 1000 Chestnut Street, Philadelphia 5, Pennsylvania. C. W. Deeg, Manager, Area Development Department. This privately owned utility distributes 28 billion cubic feet per year to consumers in Bucks, Chester, Delaware and Montgomery counties, and a small portion of Lancaster County. It has 212,000 residential, 14,000 commercial and 350 industrial customers.

#### RHODE ISLAND

**Blackstone Valley Gas and Electric Company**, 55 High Street, Pawtucket, Rhode Island. L. P. Lemieux, Industrial Development Manager. This privately owned utility transmits 11.6 million cubic feet to other utilities and distributes 3 billion cubic feet to consumers in Pawtucket, Central Falls, Woonsocket, North Smithfield, Lincoln, Cumberland, and parts of North Providence. It has 44,442 residential, 2,618 commercial and 302 industrial customers.

#### SOUTH CAROLINA

**South Carolina Electric and Gas Company**, Box 390, Columbia, South Carolina. W. S. Rodgers, Manager Industrial Development Department. This privately owned utility transmits 5 million cubic feet per day to other utilities and distributes 12 billion cubic feet per year to consumers in 14 counties throughout southwestern South Carolina. It has 38,564 residential, 4,744 commercial and 72 industrial customers.

#### SOUTH DAKOTA

**Northwestern Public Service Company**, Huron, South Dakota. S. E. Sewell, Administrative Assistant to the President. This privately owned utility distributes 7 billion cubic feet per year in east central South Dakota and central Nebraska. It has 28,669 residential and 3,564 Commercial and industrial customers.

#### TENNESSEE

**East Tennessee Natural Gas Company**, P. O. Box 10245, Knoxville 19, Tennessee. This privately owned utility transmits 20 billion cubic feet per year to other utilities and distributes 30 billion cubic feet per year to consumers in Middle and East Tennessee.

**Jackson Utility Division — Gas Dept.**, 110 E. Baltimore Street, Jackson, Tennessee. P. F. Falk, Manager. This public utility distributes 2.3 billion cubic feet per year to consumers in Madison County. It has 10,474 residential, 1,154 commercial and 13 industrial customers.

**Memphis Light, Gas & Water Division**, 179 Madison, P. O. Box 388, Memphis, Tennessee. Daniel D. Dale, Director of Industrial Development. This municipally owned utility distributes 57 billion cubic feet per year to Shelby County consumers. It has 147,134 residential, 14,480 commercial, 179 industrial, 446 public authority and 43 interdepartmental customers.

#### TEXAS

**City Public Service Board**, P. O. Box 1771, San Antonio 6, Texas. V. H. Braunig, Management Consultant. This publicly owned utility transmits 18 million cubic feet to other utilities and distributes 24 billion cubic feet per year to consumers in the San Antonio Metropolitan area. It has 142,451 residential, 13,127 commercial and 683 industrial customers.

**Southern Union Gas Company**, Fidelity Union Tower, Dallas 1, Texas. David J. Kerr, Executive Assistant (full-time development staff of 4). This privately owned



## GAS UTILITIES

utility distributes 132 billion cubic feet per year to consumers in Austin, El Paso, Galveston, Port Arthur area of Texas, in New Mexico and in northern Arizona. It produces 17 billion cubic feet per year and purchases the remainder. Its main trunk line measures 6,445 miles. It has 296,000 residential customers, 30,000 commercial, 500 industrial, 800 irrigation and 2300 public authorities customers.

A, B1, B3 through B7, B9, F, K, L, 01, 02. **Transcontinental Gas Pipe Line Corporation,\*** 3100 Travis Street, Houston 6, Texas. This privately owned utility transmits 384 billion cubic feet to other utilities and distributes 10 billion cubic feet per year to consumers in Alabama, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, Pennsylvania, New Jersey and New York.

**Trunkline Gas Company,\*** P. O. Box 1642, Houston 1, Texas. This privately owned utility transmits 134 billion cubic feet to other utilities annually.

### VIRGINIA

**Roanoke Gas Company,\*** P. O. Box 1560, Roanoke, Virginia. E. V. Bowyer, Sales Manager. This privately owned utility distributes 2.5 million cubic feet and has 16,767 residential, 1,854 commercial and 30 industrial customers.

**Virginia Gas Distribution Corporation,** P. O. Box 750, Staunton, Virginia. M. O. Wiggins, Manager. This privately owned utility distributes 10 billion cubic feet per year to consumers in central Virginia. It has 24,691 residential, 2,991 commercial and 43 industrial customers.

H, K, 01, 02, 03.

### WASHINGTON

**Cascade Natural Gas Corporation,** 222 Fairview North, Seattle 9, Washington; H. B. Munton, Industrial Sales Manager. This privately owned utility distributes 181 million therms per year to consumers in 41 Washington and Oregon communities. It produces 1 million therms per year and purchases the remainder. It has 16,074 residential customers, 4,583 commercial and 100 industrial customers.

**Washington Natural Gas Company,\*** 1507 Fourth Avenue, Seattle 11, Washington. J. Wilson Gaw, Vice President in Charge of Public Relations. This privately owned utility distributes 261 million therms annually to consumers in western Washington. It has 56,200 residential, 13,400 commercial and 100 industrial customers.

**Washington Water Power Company,\*** E. 1411 Mission Avenue, Spokane 10, Washington. Al Gruber, Economic Development Engineer. This privately owned utility distributes 97 million therms annually to consumers in nine communities in eastern Washington and northern Idaho. It has 14,976 residential, 2,073 commercial and 102 industrial customers.

### WEST VIRGINIA

**Amere Gas Utilities Company,** 1700 MacCorkle Avenue, Charleston, West Virginia. H. E. Frome, Manager, Industrial Sales. This privately owned utility distributes 1 billion cubic feet to other utilities and 4 billion cubic feet per year to consumers in southeastern West Virginia. It has 16,876 residential, 2,004 commercial and 20 industrial customers.

H, K, 01, 02, 03.

**Atlantic Seaboard Corporation,\*** 1700 MacCorkle Avenue, Charleston 4, West Virginia. This privately owned utility transmits 148 billion cubic feet to other utilities.

**Godfrey L. Cabot, Incorporated,\*** 900 Union Building, Charleston, West Virginia. This privately owned utility transmits 3.7 billion cubic feet to other utilities and distributes 8.7 billion cubic feet annually to consumers in Calhoun, Wirt, Kanawha, Fayette, Summers and Raleigh counties. It has 18,000 residential, 1,600 commercial and 21 industrial customers.

**Kentucky Gas Transmission Corporation,\*** 1100 MacCorkle Avenue, Charleston 4, West Virginia. This privately owned utility transmits 79 billion cubic feet per year to other utilities.

**United Fuel Gas Company,** 1700 MacCorkle Avenue, Charleston, West Virginia. H. E. Frome, Manager, Industrial Sales. This privately owned utility distributes 506 billion

(Continued on Page 72)



## RECENT RELEASES

By Suzanne Johnson

### GENERAL REPORTS

**Energy in the American Economy, 1850-1975** by Sam H. Schurr, Bruce C. Netschert with Vera F. Eliasberg, Joseph Lerner and Hans H. Landsberg. This comprehensive study of energy's role in the United States economy is set forth in three parts which answer vital questions of fact and policy. Part I is a thoroughgoing analytical history of energy sources, Part II is an assessment of future demands for energy and Part III assesses future energy supply and provides a basis for evaluating future prospects for atomic and solar energy and other possible new sources on which explicit data are either scanty or nonexistent. The Johns Hopkins Press, Baltimore 18, Maryland. 1960, 774 pages, \$12.50.

**Planning and Justifying Capital Expenditures** edited by Arthur Lesser, Jr. This symposium covers such subjects as Capital Budgeting and Project Justification, Post Auditing, Estimation of Working Capital Requirements for Long-Range Planning, Effects of Taxes on Investment Decisions and Evaluating Uncertainty. The Engineering Economist, Stevens Institute of Technology, Hoboken, New Jersey. 1959, 81 pages, \$4.

**Federal Programs of Assistance to Labor Surplus Areas.** The purpose of this publication is to provide a compendium of the types of Federal assistance that are available to supplement State and local programs of self-help. Superintendent of Documents, Government Printing Office, Washington 25, D. C. 1960, 43 pages, 35 cents.

**Establishment of Industrial Estates in Under-developed Countries.** Department of Economic and Social Affairs, United Nations, New York, N. Y. 1961, 56 pages, \$1.

**Growth for Free Peoples.** Stanford Research Institute Journal, Second Quarter, 1961, Volume 5. Stanford Research Institute, Menlo Park, Calif. 1961, 92 pages, \$1.

### AREA REPORTS

**Encyclopedia of Mississippi Manufacturers.** The encyclopedia contains the names of all manufacturing establishments in the state, pinpointing the location, number employed and the primary product manufactured. Mississippi Industrial and Technological Research Commission, P. O. Box 1037, Jackson, Miss. 1961, 194 pages, \$5.

**An Introduction to Ontario, California.** Association of Commerce and Industry, Inc., 206 West "B" Street, Ontario, Calif. 1960, 20 pages.

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## EXPANSION PLANNING INDEX

**Alabama Gas Corporation**, Mr. Frederic Lee Smith, 1918 First Avenue, Birmingham, Alabama. (Ad page 64)

**Arizona Public Service Company**, Mr. A. V. K. Babcock, Director, Area Development, P. O. Box 2591, 501 South Third Street, Phoenix, Arizona. (Ad page 56)

**Australian Trade Commission**, Mr. A. J. S. Day, 630 Fifth Avenue, New York 20, New York. (Ad page 3)

**Baltimore County Industrial Development Commission**, Mr. H. B. Staab, Director, County Office Building, Towson, Maryland. (Ad page 3rd cover)

**Greater Burlington Industrial Corporation**, Mr. Charles D. Townsend, Executive Director, 191 College Street, Burlington, Vermont. (Ad page 4)

**The Columbia Gas System**, Mr. C. C. Eeles, Director of Business Promotion, 120 East 41st Street, New York 17, New York. (Ad page 2nd cover)

**Columbus & Southern Ohio Electric Company**, Mr. Willis C. Welch, Supervisor, Area Development, 215 North Front Street, Columbus, Ohio. (Ad page 9)

**The Consumer's Gas Company**, Mr. J. F. Leith, Advertising Manager, 19 Toronto Street, Toronto, Ontario, Canada. (Ad page 65)

**DeKalb County Chamber of Commerce**, Mr. F. William Broome, Manager, P. O. Box 97, Decatur, Georgia. (Ad page 59)

**First National Bank of Arizona**, Mr. Glenn Pratt, Vice President, 411 North Central Avenue, Phoenix, Arizona. (Ad page 53)

**Georgia Power Company**, Mr. Gene A. Yates, Jr., Vice President, P. O. Box 1719, Atlanta, Georgia. (Ad page 5)

**Gulf States Utilities Company**, Mr. Herschel R. Mathews, P. O. Box 2951, Beaumont, Texas. (Ad page 15)

**Mesa Chamber of Commerce**, Mr. W. J. Asher, c/o Valley National Bank, Mesa, Arizona. (Ad page 52)

**Mid-Western Ontario Development Association**, Mr. Eimer Goebel, Director, 258 Ontario Street, Stratford, Ontario, Canada. (Ad page 65)

**Naples Real Estate Exchange**, P. O. Box 1246, Naples, Florida. (Ad page 39)

**Northern Illinois Gas Company**, Mr. Harold J. Roth, Manager, Industrial Development, 615 Eastern Avenue, Bellwood, Illinois. (Ad page 63)

**Northern Natural Gas Company**, Mr. Perry F. Roys, Director, Area Development Department, 2223 Dodge Street, Omaha 1, Nebraska. (Ad page 62)

**Odessa Chamber of Commerce**, Mr. Ray W. Hedges, Executive Vice President, 211 West Third Street, Odessa, Texas. (Ad page 4)

**State of Ohio, Department of Industrial & Economic Development**, Mr. Koder M. Collison, Director, State Office Building, Columbus, Ohio. (Ad page 13)

**Phoenix Chamber of Commerce**, Mr. Floyd A. Rains, Manager, 805 North Second Street, Phoenix, Arizona. (Ad page 46)

**Puget Sound Power & Light Company**, Mr. Steward G. Neel, Manager-Area Development, 1400 Washington Building, Seattle 1, Washington. (Ad page 70)

**Salt River Project**, Mr. Daniel J. Scarpone, Advertising Assistant, P. O. Box 1980, Phoenix 1, Arizona. (Ad page 51)

**Southern Pacific Company**, Mr. L. E. Hoyt, Manager Industrial Development, 65 Market Street, San Francisco 5, California. (Ad page 45)

**Southern Union Gas Company**, Mr. W. D. James, District Manager, P. O. Box 270, Flagstaff, Arizona. (Ad page 47)

**Texas Power & Light Company**, Mr. J. D. Eppright, Director, Industrial Development, P. O. Box 6331, Dallas, Texas. (Ad page 2)

**The Tucson Gas, Electric Light & Power Company**, Mr. Hamilton R. Gatlin, 35 West Pennington, P. O. Box 711, Tucson, Arizona. (Ad page 49)

**Tucson Industrial Development Board**, Mr. K. G. Dixon, Director, 405 Arizona Land Title Building, Tucson, Arizona. (Ad page 48)

**Union Electric Company**, Mr. G. J. Haven, Manager, Industrial Development, 315 North Twelfth Boulevard, St. Louis, Missouri. (Ad page 4th cover)

**Valley National Bank**, Mr. Lawrence Mehren, Vice President, 141 North Central, Phoenix, Arizona. (Ad page 51)

**Yuma Chamber of Commerce**, Mr. Ray Walker, c/o Arizona Public Service Company, P. O. Box 311, Yuma, Arizona. (Ad page 55)

### OTHER:

**American Creosote Works, Inc.**, For Waguespack Pratt, Inc., Mr. S. B. Braselman, Jr., Vice President, 1305 Dublin Street, New Orleans, Louisiana. (Ad page 67)

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## GAS UTILITIES

(Continued from Page 71)

cubic feet to other utilities and 43 billion cubic feet per year to consumers in southern West Virginia. It has 109,060 residential, 10,341 commercial and 205 industrial customers.

G. H. K., 01, 02, 03.

### WISCONSIN

**Michigan-Wisconsin Pipeline Company**, Post Office Box #149, Waukesha, Wisconsin; Jack H. Mikula, Industrial Development Engineer. This privately owned utility transmits 190 billion cubic feet to other utilities in Wisconsin, Michigan, Iowa, Illinois and Missouri.

A, B1 through B7, B10, C, D, F, H, I, K, L, M, 01, 02.

**Milwaukee Gas Light Company**,\* 626 East Wisconsin Avenue, Milwaukee 1, Wisconsin. Lloyd J. Klein, Vice President and Controller. This privately owned utility distributes 45 billion cubic feet per year to consumers in an area of 572 square miles covering the city of Milwaukee and other communities in Milwaukee, Waukesha, Washington and Ozaukee Counties. It has 258,805 residential, 11,772 commercial and 1,529 industrial customers.

### WYOMING

**Cheyenne Light, Fuel & Power Company**,\* P. O. Box 919, Cheyenne, Wyoming. Gordon Parker, Director of Area Development. This privately owned utility distributes 4.3 billion cubic feet per year to consumers in and around Cheyenne, Wyoming. It has 11,645 residential, 1,518 commercial and 16 industrial customers.

## CANADA

### ALBERTA

**Canadian Western Natural Gas Company**,\* Limited, 140 - 6th Avenue, S.W., Calgary, Alberta. This privately owned utility transmits 383 million cubic feet to other utilities and distributes 39 billion cubic feet to consumers annually in Calgary, Lethbridge and 61 other communities in southern Alberta. It has 79,229 Residential, 7,645 commercial and 171 industrial customers.

### ONTARIO

**The Consumer's Gas Company** (and subsidiaries), 19 Toronto Street, Toronto 1, Ontario, Canada; D. F. Connor, Manager, Industrial, Commercial & Residential Sales. This privately owned utility distributes 37.5 billion cubic feet in Metropolitan Toronto and surrounding southern Ontario, Niagara Peninsula and eastern Ontario, including Ottawa. The company produces 164 million cubic feet and purchases the remainder. It has 230,673 residential customers, 12,270 commercial and 2,855 industrial customers.

B2, B4, B5, B6, B7, B10, C, D, F, H, 01, 02, 03.

**Lakeland Natural Gas Limited**, 312 Bagot Street, Kingston, Ontario; D. A. Marshall, Industrial and Commercial Manager (1 full-time and 2 part-time development personnel). This privately owned utility distributes 2.75 billion cubic feet per year to consumers along Lake Ontario and the St. Lawrence Seaway from Port Hope to Cornwall, Ontario. It has 3,900 residential customers, 600 commercial and 50 industrial customers.

A, B1, B2, B4 through B8, B10, C, D, F, G, H, J, 02.

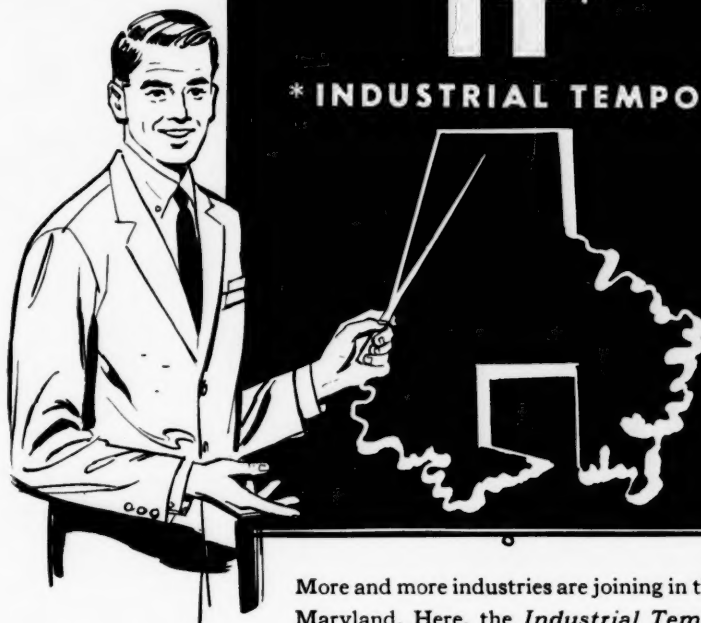
**Northern Ontario Natural Gas Company**, Limited, 170 University Avenue, Toronto 1, Ontario. R. M. Hunter, Director of Industrial Development. This privately owned utility distributes 20 billion cubic feet per year to consumers in northern and northwestern Ontario. It has 9,916 residential, 1,623 commercial and 13 industrial customers.

### QUEBEC

**Quebec Natural Gas Corporation**, 6025 Cote de Liesse Road, St. Laurent, Quebec. This privately owned utility distributes 11 billion cubic feet per year to consumers within a 15-mile radius around the Island of Montreal. It produces 669 million cubic feet and purchases the remainder. It has 224,153 residential customers, 12,091 commercial and 1271 industrial customers.

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Below are the names of people we hope you will want to contact for further information.

**Arbutus-Halethorpe Area**  
Samuel M. Pistorio  
3908 Coolidge Avenue  
Baltimore 29, Md. (CI. 2-0500)

**Parker W. Frames, S. I. R.**  
Industrial Specialists  
Lord Baltimore Hotel  
Baltimore 3, Md. (SA. 7-2284)

**Kilmarnock Associates**  
**Kilmarnock Industrial Park**  
923 Munsey Building  
Baltimore 2, Md. (SA. 7-1686)

**Owings Mills Industrial Park**  
c/o Frank S. Nicoll, Jr.  
Milford Mill Rd. & W. Md. R.R.  
Baltimore 8, Md. (HU. 6-7000)

**Ira C. Rigger, Inc.**  
(N. Central & Texas Parks)  
General Contractors  
Cockeysville, Md. (NO. 6-1800)

**Canton Company of Baltimore**  
300 Water Street  
Baltimore 3, Maryland  
(LE. 9-5126)

**Greater Baltimore**  
**Industrial Community**  
414 York Road  
Towson 4, Md. (VA. 3-3441)

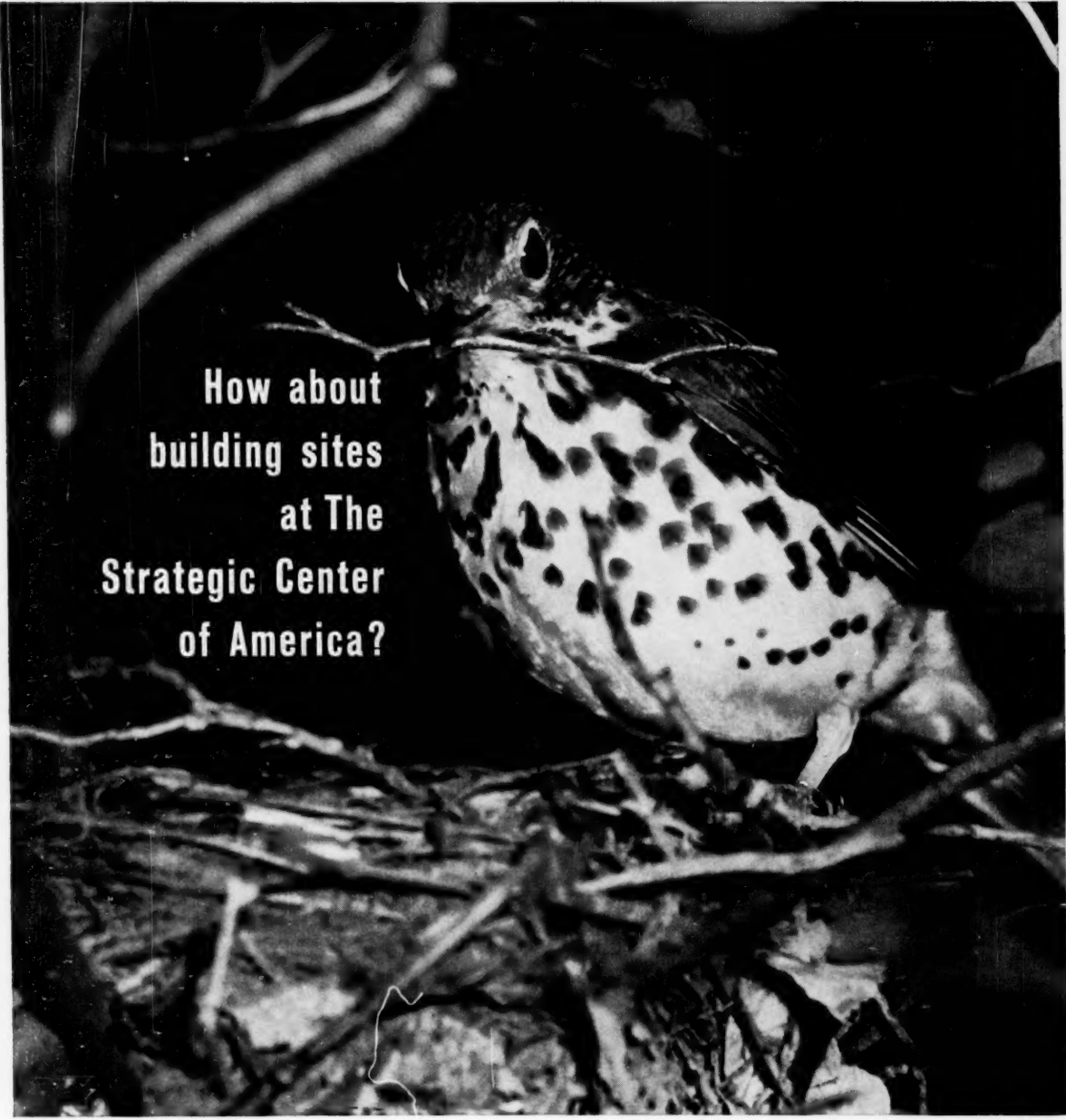
**Meadows Industrial Park**  
2406 Greenmount Avenue  
Baltimore 18, Maryland  
(HO. 7-4970)

**William F. Chew**  
**Pikesville Industrial Park**  
Pikesville 8, Maryland  
(HU. 6-8000)

**Mr. Thomas W. Offutt**  
**Towson Industrial Park**  
403 Washington Avenue  
Towson 4, Md. (VALLEY 5-7300)

**Mr. H. B. Staab, Director**  
**Baltimore County Industrial**  
**Development Commission**  
Towson 4, Md. (VA. 3-3000)

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G. J. Haven, Manager, Industrial Development, Dept. D-6  
**UNION ELECTRIC COMPANY / St. Louis 1, Missouri**

